THE IRON AGE

Established 1855 New York, June 27, 1912 *Vol. 89: No. 26*

Features of a New Gray Iron Foundry

Water Boxes, Portable Jib Cranes, Cupola Charging, Safety Japanning Ovens and Lock Making Department of the Taylor & Boggis Foundry, Cleveland

A new gray-iron jobbing foundry with a number of interesting features has recently been placed in operation by the Taylor & Boggis Foundry Company, Cleveland, Ohio. Some time ago the site occupied by the No. 2 plant of this company was wanted by the Pennsylvania Railroad to provide yard room in connection with its grade crossing elimination work in Cleveland, and the sale of the site gave the company an opportunity to erect a modern plant on property of sufficient size to provide abundance of room for present and future needs. The new plant is located on a 5½ acre site at 3027 East Fifty-fifth street, near the Erie Railroad tracks, a switch from which runs into the yard. The new foundry is designed for making gray-iron castings from the smallest to the largest size. The plant, in addition to the foundry, includes a large building devoted to the manufacture of builders' hardware, the lock plant being operated as a separate department. The company still operates its No. 1 plant on West Third street, where its general offices are located.

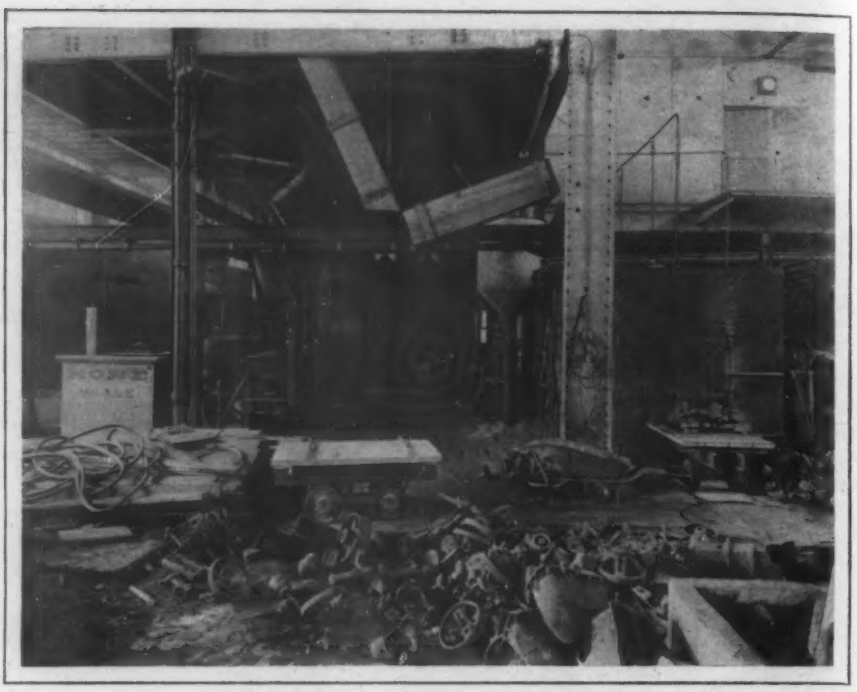
View in North Bay Showing Squeezer Molding Machines Along the Wall and the Suspended Heating Pipes

On the street frontage of the new plant there is an office building and shipping department. To the back of this building and connected to it is the foundry. Among the important features of the plant are the arrangements made for the convenient handling of material from the time it is taken from the storage yard until the finished castings are loaded on trucks for shipment, and the unusual hight of the foundry building, which affords good ventilation and keeps the foundry floor largely free from smoke. The foundry floor is covered with a network of industrial tracks with conveniently located turntables on which much of the handling is done on small cars. These tracks extend through the shipping department and to various parts of the storage yard as needed.

The office and shipping building is a two story and basement structure 50 x 135 ft., of brick and reinforced concrete construction. The floors are of cement. The industrial tracks that run into the shipping department are laid in the cement. The basement is used for a lavatory and storage, and the first floor for the office and shipping room. All the light castings are sent to the shipping rooms to be barreled up. Heavy castings go directly from the foundry to the loading platform. On the second floor is a pattern room and machine shop. On the mezzanine floor of the foundry adjoining the pattern and machine

shops are rooms containing equipment in connection with the sand blast apparatus and the blacksmith and carpenter shops. A wide door opens from the carpenter shop to a side street and lumber is unloaded from wagons with a hand hoist that runs on an I beam projecting out over the door.

The main foundry building is 420 ft. long and 112 ft. wide. It is of brick and steel construction and has a monitor roof. The building is divided into three bays, the center bay being 50 ft. wide and each side bay being 30 ft. wide. The hight of the center bay is 38 ft. The side bays are 20 ft. high at the lowest point and 24 feet high at the highest point. The crane rail in the center bay is 19 ft. 6 in. above the floor. The sides of the building are fitted with continuous steel sash that extend up to the roof. The sash are fitted with translucent glass to diffuse the light through the building and prevent the glare of bright sunlight. In the sides of the monitor there are two continuous sections of windows in steel sash, the entire upper section of which can be opened to afford ventilation. The steel sash used in the foundry building and in other parts of the plant were furnished by the David Lupton's Sons Company.



Cleaning Room Showing the Sand Blast Machines. The Inclosed Cleaning Room for Large Castings is Shown to the Right

Through the center bay runs a 10-ton electric crane with a 50 ft. span built by the Northern Engineering Works. In addition to this there is another crane, a 2-ton hand wall crane with a swinging jib, built by the Euclid Crane Company. The wall crane is hung on sockets in the columns. This crane is easily moved from one part of the foundry to another by being picked up by the larger crane and carried to the place needed, crane sockets being provided on a number of columns.

Located around the foundry floor at convenient places are 12 water boxes built of concrete. These are served by a 1-in. supply pipe. An interesting feature of the water supply arrangement is that instead of having the water pipes run directly into the boxes, sections of hose about 8 ft. long with nozzles attached are connected to the water pipes and these hang over the boxes. When desired any part of the foundry can be reached with streams of water from these short lines of hose. An accompanying illustration shows one of the water boxes and hose connection.

The melting house is located at about the center of the foundry building on the south side. There are two cupolas, one 84 in. in diameter, installed by the Whiting Foun-

View from West End of Foundry Floor of the Taylor & Boggis Foundry Company, Cleveland.

One of the Water Boxes and Hose Connection

dry Equipment Company, and the other 78 in. in diameter, installed by the Van Dorn Iron Works Company. The charging floor is 60 x 50 ft. in size. It is served by two 2-ton Otis elevators, one at each end of the floor in the rear. The floor itself is of steel plate. The floor has three transfer tracks and cars, one at each end and one in the center, and cross tracks are located as closely together as they can be placed. With this track arrangement cars can readily be taken to both sides of each cupola and the charging floor shown in one of the illustrations has a capacity of 64 cars. These cars take 4000 lb. of pig iron and 500 to 600 lb. of coke.

The cupolas are charged by means of air hoists. Material for the cupolas is loaded in the yards on industrial cars, then taken to the weighing room under the melting house, where all material is weighed. They are then run on the elevators and taken to the charging floor. A very convenient method is employed for discharging the cars into the cupolas. A loaded car is run from the transfer track on to a short section of track one of which is on each side of the cupola. It is stopped by a sharp upward curve of the rails and is then tilted as one of the views shows until its contents are discharged, this being done by raising with the air hoist the rear end of the section of track, which swings on a hinge. The cars are dumped first into one side door of the cupola and then into the opposite side door to secure even charging. The blast for the 84-in. cupola is furnished by a Connersville positive pressure blower and the blast for the 78-in. cupola is furnished by a Sturtevant fan. On the foundry floor back of the cupolas is a water cinder mill furnished by the Cleveland Nickel Works for reclaiming iron and coke.

The core room occupies a space 80 x 30 ft. in the south bay. It is equipped with a 6 in. Osborn jar ramming core machine. Adjoining this room is the core oven house 40 x 45 ft. in size, in which there is a battery of four 5 x 20 ft. ovens of the roller drawer type for light work. Two of the ovens have four drawers and two five drawers. Adjoining this core room is a large core oven 20 x 45 ft. in which cores are baked on special cars on which they are run into the oven. This oven is fired only at night and all the ovens are fired with natural gas.

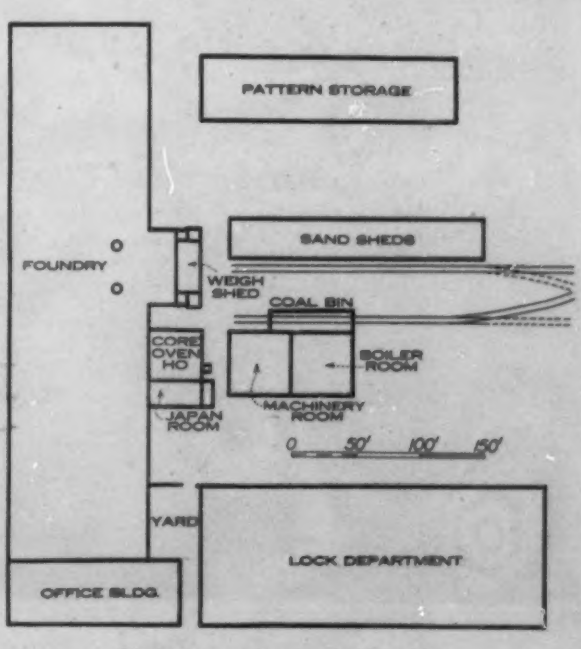
The molding machine equipment consists of thirty 36 in. squeezers, made by the Taylor & Boggis Foundry Company, six 10-in. Tabor air squeezers, one Pridmore stripping plate machine and a 36 x 36 in. Tabor shockless jar ramming machine. With the exception of the last machine named, which stands in the center bay, these machines are located in the outer bays along the side walls as shown.

The cleaning department, a view of which is given, occupies the southwest corner of the foundry. The sand blast system is used exclusively. There are four barrels made by the Tilghman-Brookshank Sand Blast Company and one barrel built by the New Haven Sand Blast Company for light castings. Large castings are cleaned by means of the nozzle in two sheet steel enclosed rooms, one of which is shown in the view of the cleaning department. The operator wears a helmet and is supplied with fresh air in the top of the helmet through a hose from the air lines.

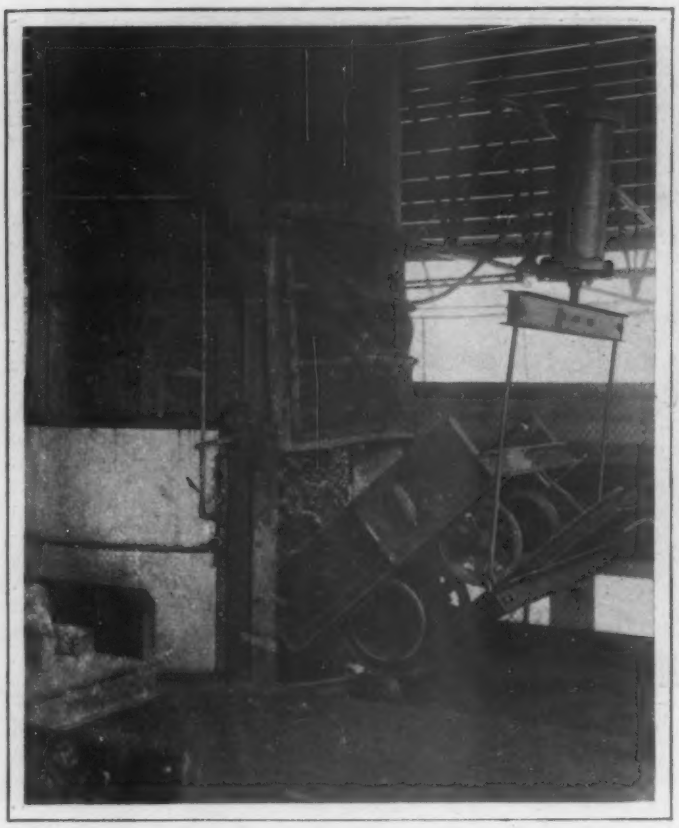
The japanning room that adjoins the foundry building at the south bay near the core ovens has some interesting features. This room is 20 x 45 ft. and has an industrial track running into it from the foundry floor. The concrete floor is 6 in. lower than the foundry floor to avoid danger of the liquid spreading to the foundry floor in case of fire. A concrete mixing tray is built into the concrete floor. At the back of the room are two ovens 8 x 8 ft. built by the Van Dorn Iron Works Company. At the top of the ovens are four steel doors filled with asbestos. These doors are hinged at the upper edges and lie on steel forms. A few feet above the doors is a roof of light sheet steel. In case of an explosion the four doors will be pushed open and the roof blown off, so that the only damage to be repaired will be the replacing of the roof. The ovens are fired by natural gas.

A covered sand and coke shed 27 x 182 ft. is located a short distance south of the foundry building. Along one side of this shed is a railroad switch track and along the other side an industrial railroad track. The pattern storage building which is conveniently located south of the foundry, is 50 x 200 ft. in size. It is of brick and steel construction with steel sash and wire glass and has a concrete floor.

A short distance to the south of the foundry is located the power house. As electrical power is secured from a commercial company no engines have been installed. Space provided for engines is now used for the housing of a 1-ton and a 3-ton motor truck for cartage purposes. The engine room equipment includes a 150 hp. synchronous motor built by the Fort Wayne Electric Works, and used for driving the air compressors. There are two Ingersoll-Rand compressors, one low pressure with a capacity of 1350 cu. ft. free air to operate the sand blast and a high-



Block Plan of the New No. 2 Plant



How Material is Discharged Into the Cupola

pressure machine with a capacity of 450 cu. ft. of free air to operate the chipping hammers, molding machines and air hoists. The air tanks are located outside of the power house under the extended roof to give the air a chance to cool. There are also two auxiliary compressors, a Franklin high-pressure machine made by the Chicago Pneumatic Tool Company and a low-pressure compressor made by the Bury Compressor Company. In the boiler room there are three 100 hp. boilers for the heating system. Coal is dropped from the bottom of hopper cars into open bins at the side of the power house and the bottom of the bins is on a level with the floor of the boiler house.

Between the foundry and shipping and the lock department buildings is a covered loading yard with a 15-ft. driveway to the street. The floor of this is paved and at each end there are steel rolling doors so that in stormy weather the loading area can be made into a completely enclosed room. Castings from the foundry are taken in the industrial cars to the southwest corner of the foundry building, from where they are handled by the Coburn system of transportation and carried out on the loading platform and placed on wagons or motor trucks. A similar trolley system is used for loading from the lock department platform on the other side. All loading floors are at wagon box level. This yard also adjoins the shipping room from which small castings are taken after being barreled. The loading yard is also equipped with wagon scales. In addition to the two elevators that serve the charging floor a third 2-ton Otis elevator serves the basement and two floors of the office and shipping building and the mezzanine floor in the foundry.

All the buildings have reinforced concrete roofs, reinforced with Toncan metal. The cement is covered on the upper side with tar paper and on this is a mixture of tar and Trinidad asphalt. This is finally covered with crushed slag. Steel window sash are used throughout the plant except for the street exposure of the office and shipping building, which has wooden sash. Translucent glass is used throughout exccept in the office building. Most of the windows have wired glass, this being used exclusively where there are fire walls.

The foundry is lighted with tungsten lamps, some of 60 watt and some of 100 watt capacity each. The lamps are in clusters of four, one cluster in each bay under the crane rails. Each bench squeezer man has an individual side drop lamp. Light plugs are provided in the columns so that the molders in the center bay may have individual lamps when needed. All wiring throughout the building is in conduits. The foundry is heated by a vacuum steam heating system through pipe coils suspended under the

View of the Charging Floor Showing Tracks and Cars

ceiling in the side bays. In the office building and in the lock department wall radiation is provided by Pressed steel radiators suspended under the windows and leaving the floor space clear. In the lock department heating coils are suspended under the sawtooth windows. The steam mains from the power house are overhead and the return mains are underground.

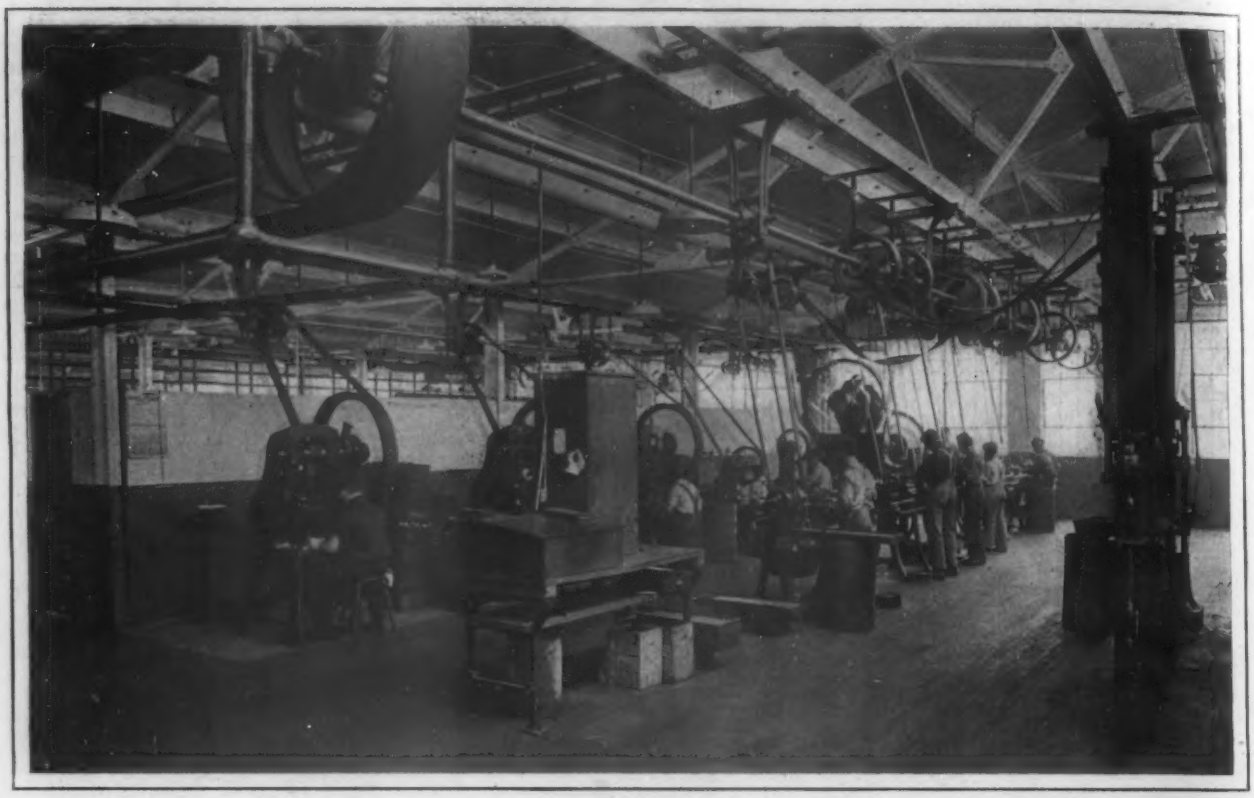
Porcelain lined wash bowls are provided in the lavatory in the basement of the office building. Hot water is furnished by two Ruud hot-water heaters. Provision has also been made for shower baths to be installed later. In addition to those in the lavatories, water closets are placed at convenient places in the foundry. There are 215 ventilated steel lockers in the lavatory. Each man has a locker but employees are required to furnish their own locks if they wish to lock up their clothes. In this way the company does not become involved in trouble over lost articles or lost keys. A number of bubbling drinking fountains are located throughout the plant. There is a rest room for office girls on the first floor of the office building. In this there is a gas range on which they may cook their lunches if they desire.

Porcelain Washbowls and Steel Lockers in Lavatory

The entire plant is covered by the Auto call signal system and by telephones. The usual method of having workmen ring in and out when they enter the outer door of the plant has been changed. Workmen enter the plant from a door in the loading yard and go to the lavatory in the locker room. After putting on their working clothes they ring in as they go from that room ready for work. A similar method is employed for ringing out as the men leave their work to go to the lavatory.

The lock department occupies a one story brick and steel building, 110 x 270 ft., with a sawtooth roof. This building is conveniently arranged with a 9 ft. passageway down the center and with the various departments on each side. These departments are separated by hollow tile walls, some 7 ft. high and others extending to the roof, but there are no partitions along the passageway. This form of construction separates the various departments but gives the interior the appearance of being one large room and improves the lighting and ventilation. In the construction of this building particular attention has been given to lighting and ventilation and to various conveniences for the comfort of the employees. An abundance of light is provided by the continuous side windows and two sections of continuous windows in the sawtooth of each of the nine 30 ft. bays. The upper sections of the sawtooth windows are opened with chains reaching down along the side walls. Additional ventilation is provided by pivoted window sections in the side walls. Artificial light is furnished by clusters of four 60 watt lamps hung

Packing and Shipping Room in the Lock Department



A Corner in the Press Room in the Lock Department

well up and throwing the light throughout the rooms instead of having individual lamps where machines are operated.

Original plans have been carried out in the flooring. Of the 30,000 sq. ft. of floor space in this building 12,000 sq. ft. is covered with a wooden floor and the remainder with a cement floor. Wooden floors being regarded as easier on the feet are used in all the aisles and all other parts of the plant where employees stand or walk a great deal. The wooden floor consists of sleepers embedded in concrete; on the sleepers ⅞-in. pine boards were placed and on top of this, was laid one thickness of tarred paper between a flooring of ⅞-in. factory maple. The maple and pine flooring as well as the sleepers were covered with a special preparation to preserve the wood.

The various departments of the lock department include a shipping and packing room, a machine room, a lock fitting room, a cylinder room, a lacquering room, a buffing room, a polishing room, a plating room, a tool room, a stock room and an office. The machinery is driven by a group system requiring nine motors. All of the main driving belts are protected by a frame made of 1½ in. gas pipes. Steel equipment is used throughout the building. This includes all boxes, racks and shelving. The only wood used is the tops of the benches.

The Plating Room in the Lock Department, Taylor & Boggis Foundry Company

Sanitary toilet rooms and dressing rooms, equipped with steel lockers are provided for both the male and female employees. Mixers in the lavatories furnish water of the desired temperature, hot water being provided by a special boiler operated in connection with a steam plant for manufacturing purposes, located in one corner of the plating room, and heated by natural gas. There is also a kitchen in which hot tea and coffee are served free to all employees during the noon hour.

The products of the lock department include the hardware used in dwelling and apartment houses. These products involve an almost endless variety of designs of locks, including cylinder locks.

Motor Size in the Commercial Vehicle

The size of a motor in a commercial vehicle is something which ought to be looked into by the purchaser, according to Eugene P. Batzell, Hudson Motor Car Company, Detroit, in a paper read before the Society of Automobile Engineers in Detroit. He mentions that a 3½ x 5¼ in. cylinder for the engine of a 3-ton motor truck may seem too small, but, with increasing attention paid to economical performance in service, such an engine is one that might well be considered. Heretofore it has appeared safe to use a motor over-size as one would then do away with possible future criticism as to lack of power. The author considers that the buyer of commercial cars will do well to consider the question of motor size to assure himself that the extra expense connected with the oversize motor remains within allowable limits.

The relation of cylinder diameter and cylinder stroke in the automobile engine was made the subject of a paper by John Wilkinson, H. H. Franklin Mfg. Company, Syracuse, N. Y., before the same meeting. As a purely thermal question the author considers that there is no reason why the stroke can't be carried even beyond a ratio of two to one compared with the bore. In mechanical design, however, awkwardness begins to be apparent at ratios beyond 1.33 and beyond 1.5 the objections become more or less acute running into weight and expense without compensating features. Extra long stroke involves too much weight in the valve mechanism and a strong temptation to employ connecting rods too short in order to keep down the hight and weight.

British Iron and Steel Exports in May.—The restricted production of iron and steel resulting from the coal strike affected British exports in May more than in April. The total of iron and steel shipped from the British Isles in that month was 338,341 gross tons against 424,093 tons in May, 1911. The total for the first five months of this year was greater, however, than in the same period of 1911—1,953,678 tons against 1,944,597 tons. Pig iron exports for the first five months of this year were considerably above those for the same period in 1911—541,697 tons against 462,406 tons. The British imports of iron and steel in the first five months of this year were 760,608 tons; for the first five months of 1911 they were 791,721 tons. The May imports were 168,141 tons this year, against 171,696 tons in 1911.

An elaborate demonstration of the advance in the use of motor trucks and delivery wagons was made in Philadelphia, Pa., on June 20 when a parade including about 70 makes of vehicles was followed by an industrial display and exhibit at the Belmont Driving Park, Narbeth. The parade was in five divisions, the first being composed of trucks with a carrying capacity of 7000 lb. and over; the second, 4000 to 6900 lb.; the third, 2100 to 3900 lb.; the fourth, 2000 lb. or less; the fifth, electric vehicles, irrespective of their capacity.

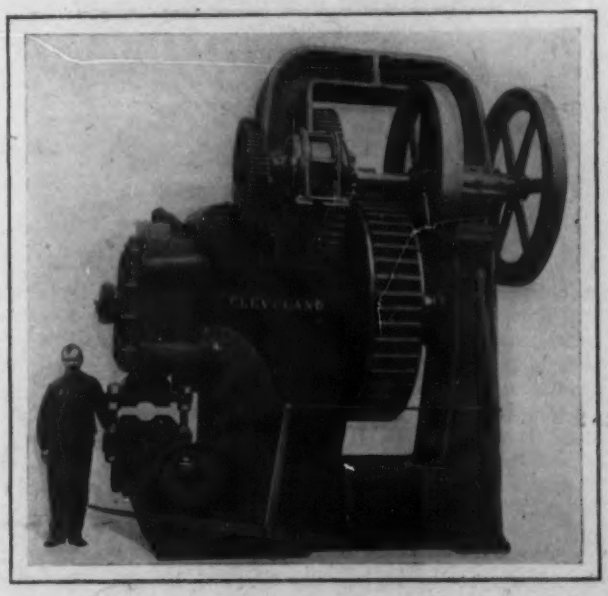
The National radial drilling machine made by the Fosdick Machine Tool Company, Cincinnati, Ohio, has lately been redesigned in respect to the 2½ and 3 ft. sizes. It has a box-column of one piece construction and of large section to secure strength. The saddle in which the arm swings on ball bearings is gibbed to the column and it has large bearing surfaces.

Large Open Gap Shearing Machine

An 18-in. open gap heavy railroad shearing machine that is of interest, both on account of its size and because of a number of special features, has been built by the Cleveland Punch & Shear Works Company, Cleveland, Ohio, for the Beech Grove, Ind., shops of the Big Four Railroad. Two of the special features of this powerful machine, which is designed for the maximum requirements of a railroad forge shop and is intended particularly for shearing car axles and for scrapping locomotive frames, are the balanced flywheel shaft and a substantially constructed ribbed cover plate supporting the front end of the main shaft. Its capacity is 6½-in. round steel bars, 5½-in. squares and 12 x 2¾-in. flats.

The machine is driven by a 30-hp. direct-connected direct-current constant-speed motor through a train of gears consisting of a motor gear and pinion, an intermediate gear and pinion and a main gear and pinion. The first pair have cut teeth and the faces are very wide, which insures an ample wearing surface. The intermediate gear and the pinion meshing with it are of steel, with teeth cut from the solid metal, the face width being 9 in. and the pitch 3 in. The main gear is double shrouded with an 18-in. face and is bronze bushed on the main shaft.

The balanced flywheel shaft, which has two flywheels, each 66 in. in diameter, located one on each side of the shaft bearing, is a special feature of the machine. This



An 18-In. Open Gap Railroad Shearing Machine Built by the Cleveland Punch and Shear Works Company, Cleveland, Ohio

bearing is 21 in. long and those of the 8-in. intermediate shaft are 3 in. longer. The flywheel shaft and the intermediate shaft bearings are set on an angle so that the shaft can be easily removed. The main shaft is of oil-treated high tensile steel and has an eccentric for a 5-in. stroke. It revolves in four bronze bushed bearings. The length of the other bearings are cover plate bearing, 8 in.; front bed bearing, 15¼ in.; rear bearing, 14 in., and outside bearing, 10 in.

Another special feature of the machine is the substantial construction of the solid steel ribbed cover plate which supports the front end of the main shaft and is both tongued into and gibbed around the head of the frame, an arrangement which insures rigidity regardless of the direction from which the pressure comes. The steel plunger is of massive construction and measures 12 x 30 in. in section. It has four T slots in the bottom to receive the T bolts and also has a large bronze taper gib for adjustment. The movement of the plunger which is counterbalanced with a spring counterweight is controlled through a large steel bronze bushed oscillating pintle. Another feature is a large steel clutch and automatic shifting mechanism which enables the machine to be controlled through a pressure of only a few pounds on the foot treadle.

The machine is 14 ft. high, 102 in. wide and 12 ft. long. The total weight is approximately 100,000 lb., the frame weighing 50,000 lb. and the yoke 10,000 lb.

New Flat Turret Lathe

A Recent Development of the Modern Machine Tool Company Massive in Construction

A new design with massive construction distinguishes a new flat turret lathe being built by the Modern Machine Tool Company, 4657 Spring Grove avenue, Cincinnati, Ohio. Among the special features is a belt shifting mechanism contributing to ease of manipulation. The machine is built on the unit system of construction, an arrangement serving to eliminate to an appreciable extent individual fitting in the assembling of the lathe and to insure interchangeability of parts. Fig. 1 is a view of the tool, while the lathe ready for operation with belt shifting mechanism is illustrated in Fig. 2.

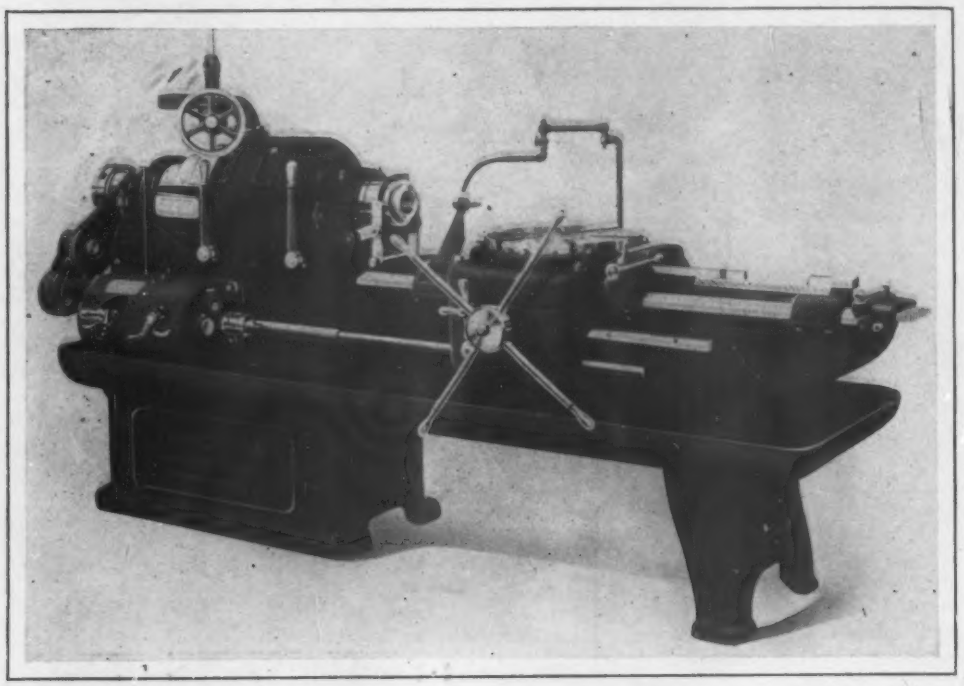


Fig. 1—The New Flat Turret Lathe Built by the Modern Machine Tool Company, Cincinnati, Ohio

All the parts of this lathe, as will be noticed from the accompanying engraving, are built extra heavy to take large sized tools and heavy cuts. At the same time the machine is easily operated, every handle, lever and wheel being reached from the operator's position and all adjustments are easily made. The size of bearings and the weight of various parts of the machine have been found justified, as chattering is prevented.

The headstock and the bed are cast in one piece to secure strength and rigidity and the headstock contains the cone pulley for driving the machine, the friction back gears, which are located in at directly under the spindle and the automatic roller feed and chuck. The cone pulley and the gears give 12 spindle speeds ranging from 24 to 465 r.p.m. The front bearing of the spindle is 4⅜ in. in diameter and 7½ in. long, while the rear bearing is 3½ in. diameter and 5½ in. long. The bed, which rests upon a three-point bearing, is crescent-shape in section. Reinforcement under the front spindle bearing gives strength and rigidity at the points where they are needed. The plane bearings are scraped to master surface plates and straight edges, while those for the shafts are ground and are fitted with removable bushings which can be replaced when worn without disturbing the alignment of the shaft.

The automatic chuck is operated by a single movement of a lever in front of the headstock. It is not necessary to change the jaws when handling various sizes of work, as one set of jaws is adjustable for the full capacity of the machine. These and the seat are hardened and ground. The chuck is constructed for handling rough bars and the jaws can be readily set to accommodate any shape and size within the capacity of the spindle, which is 2¼ in. The automatic roller feed is simple in design and has only three moving parts, each of which is of liberal proportions. It is mounted on the spindle directly back of the front bearing and is operated by the same lever and movement that opens the chuck. This feed can only be operated when the chuck is open.

The feed gear box is driven from the spindle and eight changes ranging from 0.005 to 0.085 in. per revolution of the spindle are instantly available in either direction. The lever and crank handle at the front of the gear box control the feed changes and motion from the feed box is transmitted through a disk friction and knuckle joint to the carriage feed rod.

The turret is 18 in. in diameter and has T slots of ample proportions, an arrangement which, it is pointed out, permits the use of substantial planer head bolts for securing the turning tools to the turret. These can be secured one back of the other for turning several diameters at one movement of the turret, thus eliminating the studbolts. The index is very large in diameter and is located directly under the working tool emphasized minimizing lost motion between the tool and the locking pin.

The carriage has a system of 12 stops so arranged that two may be used for each tool. A steel cover plate in the form of a slide is provided to close the opening containing the carriage stops so that they are easily accessible for oiling and inspection. During forming and cutting-off operations the carriage is securely clamped to the bed by a binder. The backward movement of the carriage automatically turns the turret to each position the instant the tool leaves the work and the turret can be turned to any one of the six positions instantly without making any other stop. The adjustable dog for operating the in-

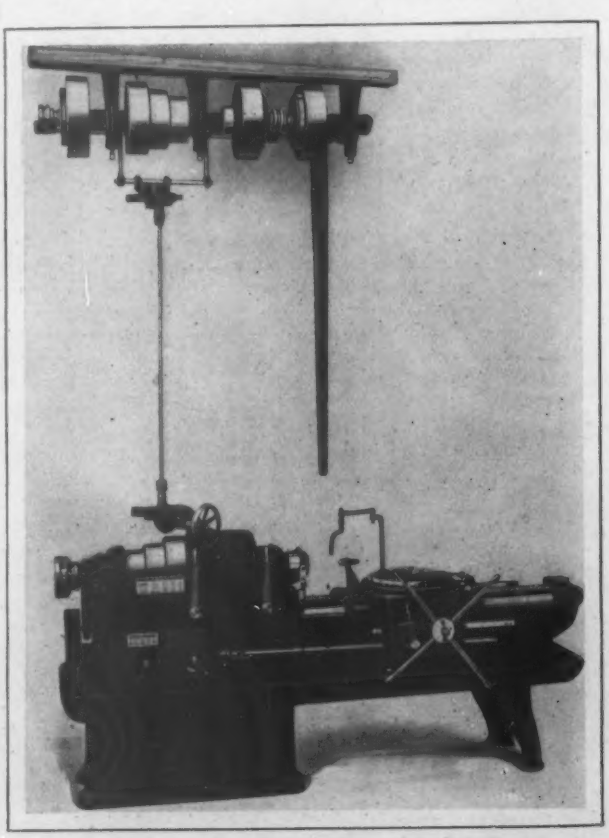


Fig. 2—View of the Lathe Showing the Belt Shifting Device

dex bar is clamped to the V and governs the position of the saddle at the time when the turret begins to revolve. The carriage has independent and adjustable stops which operate automatically for each position of the turret and can be operated in any desired combination when two or more are needed for any position of the turret.

The belt shifter, which is shown in Fig. 2, is operated by the handwheel in front of the headstock within easy reach of the operator. From the handwheel the motion is transmitted to the belt loop through an intermittent rack and pinion. A similar device is suspended from the countershaft and operates in unison with the device on the headstock through the knuckle joints and the connecting rod as shown. The belt loops are so timed that a half-turn of the handwheel to the left shifts the belt from the larger step to the smaller one on the headstock, while the loop on the upper device holds the belt out of contact with the edges of the cone pulley on the countershaft. Another half-turn of the handwheel moves the upper loop in line with the corresponding step on the countershaft cone pulley and in this way one turn of the handwheel shifts the belt from one step to the other in either direction.

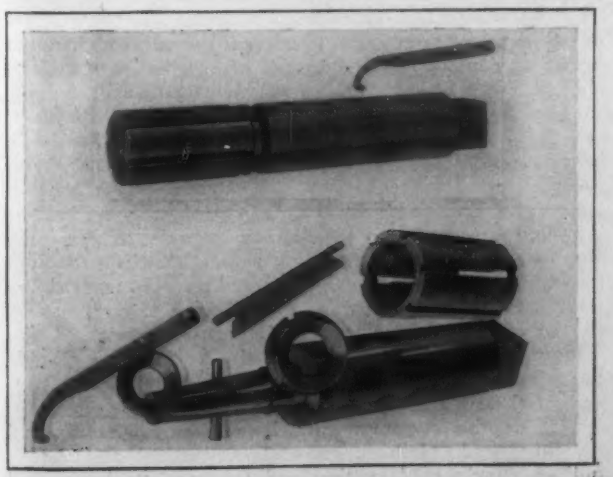
The capacity of the machine is bar stock up to 2¼ in. in diameter which is fed through the automatic chuck and can be turned to any length up to 26 in. The swing over the bed is 20 in. and that over the carriage is 4 in. less. The triple friction countershaft used has pulleys 16 in. in diameter, arranged for a 4½-in. belt. The cone pulley has three steps, the diameter of the largest being 14½ in. and a 4-in. double belt runs over it. The net weight of the machine is 4500 lb., while its domestic and foreign shipping weights are 5300 and 5500 lb. respectively. The floor space occupied by the lathe is 4 x 11 ft. and the contents of the case in which it is shipped to foreign countries is 220 cu. ft.

A New Adjustable Taper Reamer

A new type of reamer upon which patents are pending is being made by the Cincinnati Precision Lathe Company, Fosdick Building, Cincinnati, Ohio. This tool is known as the Cincinnati Precision adjustable reamer and consists of a steel shell slotted all the way through except at each end, which is fitted to a taper shank and held in position by a taper pin passing through the shell and the shank. Some of the special features claimed for this reamer are a greater degree of accuracy in the seat for the reamer blades and the protection of the threads and inner working parts from cuttings or other foreign materials.

While the shell is slotted all the way through, the cutting blades are permitted to rest directly upon the tapered shank which is threaded at each end of the taper for the adjustment of angle collars. These retain and adjust the blades by movement up or down the tapered shank and by employing a cylindrical ground shank of this type as a seat for the reamer blades, it is pointed out a finer degree of accuracy than it is possible to secure in a milled slot is obtained. The blades are jig ground and are consequently identical in every way. This feature together with the accurate milling of the slots for their entire distance to the same width as the thickness of the blade gives a uniform movement and adjustment to all the blades so that every one cuts in reaming. By reversing the adjusting collar next to the body and following with the adjusting collar at the end of the taper shank the blades are moved up the taper uniformly and accurately and it is emphasized that they cannot become eccentric to the reamer body.

The blades are firmly clamped against the taper shank by the 30 deg. angle in the collars which engages the ends of the blades. In designing the reamer care has been taken to protect the threads and inner working parts absolutely from cuttings or other foreign materials while the various adjustments are being made. Ease of adjustment is another special feature of the tool, one combination wrench being all that is required.



Complete and Partially Assembled Views of a New Adjustable Taper Shank Reamer Made by the Cincinnati Precision Lathe Company, Cincinnati, Ohio

A Steel Portable Tool Rack

Cast-iron portable tool racks have been manufactured by the New Britain Machine Tool Company, New Britain, Conn., since 1899 and recently two sizes of steel portable tool racks or work stands have been brought out. In general construction they do not differ materially from the 26 x 32 and 20 x 26 in. cast-iron racks, the rounded internal corners which formed a feature of the cast-iron

A New Steel Portable Rack for Tools, etc., Made by the New Britain Machine Company, New Britain, Conn.

pans having been retained in the drawn steel trays. These trays are stiffened by return flanges on the edges that serve to contain the corner braces which the legs tap into in the case of the upper tray and pass through in the lower ones. In all the trays the holes for the brace rivets or legs come to the top edge of the pan where they cannot impair its tightness against leaking oil.

The lower pans can be set at any desired hight and fastened there to the legs. Several patterns are made and each has an appropriate size of leg and caster suited to its load. The latter are made with a ball bearing swivel, the balls being in a retainer cage and can thus be handled as a unit.

The construction of these racks is such that they can be readily taken apart for shipment and when reassembled it is emphasized that all the casters bear equally upon the floor regardless of wear.

The Ohio Blower Company's New Plant

The Ohio Blower Company, Cleveland, Ohio, maker of ventilators, exhaust systems and other products, has leased the plant of the Bigsby Mfg. Company on Perkins avenue, and is now located there. The new plant furnishes 25,000 sq. ft. of floor space, which enables the company to largely increase its output, and it has given up for the present its intention of building a new plant, for which a site was secured some time ago. The company has acquired the heavy metal working tools of the Bigsby Mfg. Company and has installed some other new equipment in its machine shop. It reports that it is getting a good volume of business for ventilators. Among recent orders are one for 30 6-in. for the Ralston Steel Car Company, Columbus, Ohio, and another for nine 16-in. for the Edison Company, Detroit, the latter being a repeat order. The Bigsby Mfg. Company, which was engaged in the manufacture of roofing and sheet metal specialties, has discontinued its sheet metal lines and is now engaged in the manufacture of automobile spark plugs.

New Motor-Driven Milling Machines

Adjustable and Constant Speed Drives Developed by the Oesterlein Machine Company

Recently the Oesterlein Machine Company, Cincinnati, Ohio, has developed a motor drive for its plain and universal milling machines. This is of either the constant or variable speed type. Fig. 1 is a view of the adjustable-speed drive as applied to the company's No. 25 universal milling machine, which was illustrated in *The Iron Age*, April 7, 1910, while the constant-speed type of drive applied to a plain milling machine is shown in Fig. 2.

The adjustable-speed drive illustrated in Fig. 1 can be applied to any size of plain or universal milling machines. The large driving gear which runs loosely on the spindle drives this part by connecting it to the face gear or to the back gear. The intermediate gear is of fibre, which gives a practically noiseless drive. When the push button type of starter is used as illustrated, the machine is automatically adjusted to the speed for which the motor is set. By the use of various motors of different speed ranges it is possible to obtain all of the spindle speeds and if desired these can be changed by altering the pinion on the motor shaft.

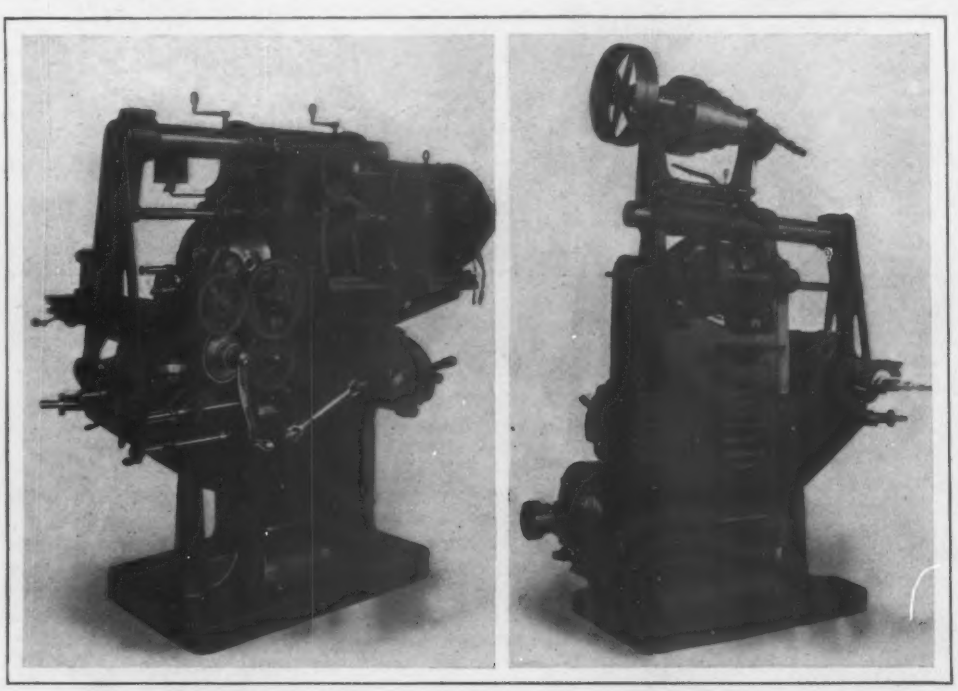


Fig. 1—Adjustable-Speed Universal Machine Fig. 2—Constant-Speed Plain Machine

Two Types of Motor-Driven Milling Machines Built by the Oesterlein Machine Company, Cincinnati, Ohio

The constant-speed drive, illustrated in Fig. 2, uses either an alternating or direct current motor, the motor shaft carrying a two-step cone pulley which drives the two-step cone pulley on the top of the machine. The pinion is mounted on the upper pulley shaft which drives the large gear on the inside of the cone pulley; this gear is secured to the pulley, the latter running loosely on the shaft. For giving the necessary tension to the belt or loosening it so that it can be easily shifted, there is a belt tightening lever which operates the eccentric upper pulley shaft. This lever is located at the right side of the cone pulley and there is a second lever between the two cone pulleys to facilitate the shifting of the belt. With a single back geared machine having four-step cone pulleys running at two different speeds, it is possible to secure sixteen spindle speeds in connection with the back gears. With the double back geared machine having a three-step driving cone pulley running at two speeds it is possible to secure 18 spindle speeds in geometric progression. The size of the motor employed for this drive varies from 2 to 5 hp. with the size of the machine.

The No. 24 plain milling machine with the constant speed motor drive illustrated in Fig. 2, is characterized by the great depth and face of column and knee, a long saddle, a high table and the absence of all openings in the sides of the knee. The quick change feed mechanism is especially compact in construction when the range and number of speeds it provides are taken into consideration. Twelve changes varying from 0.006 to 0.230 in. per revolution of the spindle are available and the power feed for the table is transmitted from the spindle to a roller chain into the sprocket from the feed box. The splined shaft on which three gears are secured is mounted on the sprocket shaft and these gears are shifted by a lever handle to engage one of them with the intermediate gear. On this intermediate gear shaft there is secured a cone of gears, with any one of which the tumbler gears engage by a second lever handle. In this way it is possible to change from one feed to another while running without any danger of interference and injury. From the gear box the feed is transmitted through a telescopic universal joint shaft to the feed reversing box on the other side of the saddle. Here the reverse lever shifts two large bevel gears which are mounted on a sliding sleeve so that either one of them can be engaged with the small bevel gear and reverse the feed. Feed is transmitted from the large bevel gears through two spur gears to a clutch gear and the lead screw. The clutch sleeve on which the clutch slides has a long key which drives the table screw and as the clutch proper is engaged with the sleeve at all times it is simply necessary when engaging the table feed to operate a small lever on the front of the saddle which engages or disengages the clutch with the spur gear on the lead screw. This gear box is an independent mechanism fitted into the column and all the gears in it run in oil. A direct reading index plate is attached to the feed box so that the correct amount of feed per revolution of the spindle can be read.

All of the operating handles on the machine are within easy reach of the operator and as the machine is right handed no reverse belts are required to use right hand drills, end mills, etc. Oil pans are provided for lubricating the bearing surfaces of the table on the saddle and as this is the same width as the table, the V's act as a long narrow guide for a straight line movement of the table. A taper gib with longitudinal adjustment backed by solid metal is furnished for the table. The elevating screw does not extend below the base of the machine when it is in its lowest position and it has ball thrust bearings to insure easy operation. A clutch crank operates the vertical screw and this can be disengaged to prevent the adjustment from being accidentally disturbed. All of the dials are adjustable and are graduated to read in thousandths of an inch.

The forged crucible steel spindle is hollow with a standard taper hole in the front end. The front spindle bearing which is of bronze is tapered both internally and externally and is secured in the column by the bearing lock nut. The other bearing is slotted with a straight bore and is turned to a taper on the outside. The spindle is adjusted by tightening the nut against the front bearing to draw the spindle into the box and as it is tapered the wear is taken up in this way. By adjusting the nut against the column and drawing the box into the taper of the column, the rear bearing is adjusted. A draw-in bar holds the arbor securely in the taper and it is driven by the front end of the spindle.

All of the customary attachments such as universal dividing head, plain index centers, vertical and rotary milling attachments, cutting and starting attachment, oil pump, etc., can be supplied to fit any size of plain machine and the customary attachments for universal milling machines can be furnished for the one illustrated in Fig. 1.

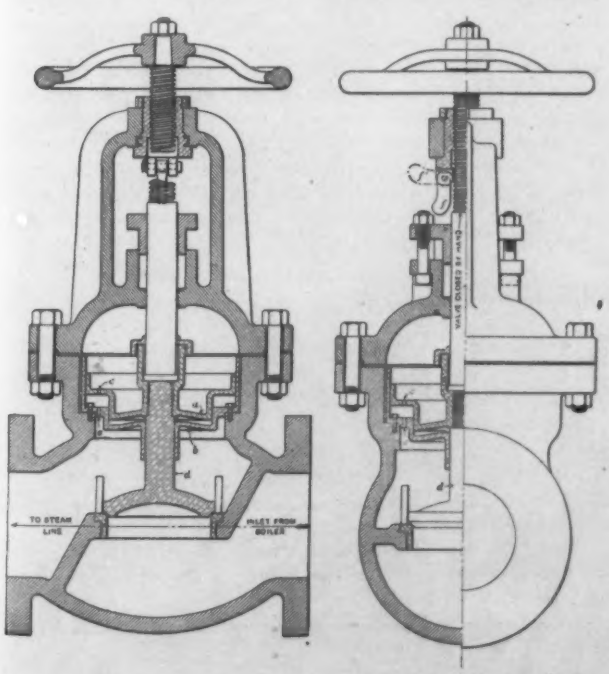
A Double-Cushioned Non-Return Valve

A new type of double-cushioned, non-return globe or angle valve with an automatic locking feature has been placed on the market by the Golden-Anderson Valve Specialty Company, Fulton Building, Pittsburgh. These valves are designed to be used as a boiler equ ing and safety valve and to give a hand stop and an automatic stop valve combined in the one mechanism. It is pointed out that the non-return feature automatically protects the boilers in case of accident, such as the bursting of a tube, and will also act as a safety stop to prevent steam from being turned into a cold boiler. These valves can be placed between the boiler and the header to equalize the pressure between the different units of a battery of boilers or can be placed in the boiler outlet to isolate the boiler from the rest of the battery in case of accident.

When these valves are placed between the boiler and the header they will equalize the pressure between the different units of a battery since they remain closed as long as the boiler pressure is lower than that of the header. As soon as the two pressures become equal the valves open and remain in that position without chattering or hammering. In case of an accident to a boiler, such as the bursting or collapsing of a tube, they will automatically cut it off from the header and at the same time will act as a safety stop to prevent steam from being turned into a cold boiler. When the valve is placed in the boiler outlet it will permit the passage of steam to the header or main as required in regular service, but will close quickly against a reversal of the flow. In this way, in case of accident to a boiler, the valve will isolate the disabled unit from the rest of the battery.

The Corliss dashpot method of cushioning these valves is employed, occupying the upper portion of the body and this arrangement is said to insure an absolutely positive cushion in the opening and closing of the valves and the perfect alignment with the seat at all times, regardless of its position. In the view at the left of the accompanying engraving the inside dashpot *a* is shown attached to the valve spindle *d*, while the outside dashpot *b* acts as a bronze cylinder, which is held firmly in place by the tap bolts. When the steam pressure raises the valve the space between the inner and outer dashpots is instantly filled with steam, thus cushioning the valve in closing. It also circulates around and above the inside dashpot through the ports *c* and *e*, and thus cushions the valve in opening. As the full boiler pressure is always above the dashpot *a*, the valve will close, being cushioned during the operation.

When the handwheel is run down into the closed position the valve is shut like any globe valve. The handwheel stem, however, merely bears against the valve stem and is not attached to it, so that when it is raised to the open position the valve disk is free to rise or fall under the action of the steam. A piston is attached to the upper end of the valve stem which creates a dash chamber in the top of the valve body above the liner. The valve stem passes through this liner loosely enough to permit the entrance of full pressure to the cushion chamber above it and through a small hole in the piston to the chamber above. Steam flowing to the header raises the valve and holds it open as long as the flow continues. If the flow of steam ceases quietly, as when the fires are drawn, the valve settles down upon its seat and remains closed against the header pressure. A sudden reversal of steam flow, in case of rupture or other accident to the boiler, tends to close the valve instantly and would do this with destructive force if it were not for the dashpot and the cushioning device above the liner. The hole through the dash piston enables steam to escape rapidly to the chamber above and the quick drop of the valve to within about ⅛ in. of its seat, when the closer fitting secondary cushion comes into action as the lower pressure of the piston enters the corresponding depression in the liner which forms a chamber that the pressure can escape only gradually from. The locking device, which is shown at *f*, enables the valve to be locked in the automatic position if it is desired to have it operate automatically at all times. When this has been done a padlock can be used to keep it in that position and prevent tampering by an unauthorized person.



An Improved Type of Double Cushioned Non-Return Angle or Globe Valve with Automatic Stop Made by the Golden-Anderson Valve Specialty Company, Pittsburgh, Pa.

Steel Corporation Suit and Congressional Appropriations

Attorney General Wickersham has spoken very plainly in the past week on the amendments to the sundry civil bill reducing appropriations for the Department of Justice. The present situation may be considered as a phase of the competition that has been going on in the past year between the representatives of two political parties, who have been busy making political capital out of trust prosecutions. The Attorney General says:

"The amendment is certainly a measure in aid of defendants now under prosecution. It would legislate out of office on July 1 every attorney engaged on behalf of the Government in any suits brought under the anti-trust law, the interstate commerce act, or any of the other laws referred to in the amendment, who two years before his present employment had held any position or employment of any kind under the Government, or who had been retained by it in any other law suit. It would wipe out at once all counsel engaged in prosecuting the United States Steel Corporation. The representatives of that corporation could ask nothing better from the Government."

The Goulds Mfg. Company, Seneca Falls, N. Y., has placed on the market a complete air compressor outfit for garage service. It consists of a Goulds air pressure pump mounted on a substantial iron base with the driving motor, starter and air storage tank. The driving motor has an output of 1 hp., and the pump used has a capacity of 1.27 cu. ft. of free air per minute, when operated at 150 r.p.m. The outfit is compact and entirely self-contained. With a tank 28 x 14 in. in diameter with a capacity of 3¼ cu. ft. of air at 150 lb. pressure, the overall dimensions of the base are 30 x 30 in. Tanks of larger or smaller capacity can be furnished.

The Carolina Machinery Company, Asheville, N. C., has been organized with a capital stock of $60,000. W. F. Decker is president; S. Sternberg, vice-president; F. A. Lindsay, secretary and treasurer. The company is formed for the purpose of acquiring the properties and assets of the American Foundry & Supply Company which went into bankruptcy a short time ago on account of financial difficulties. The new company plans extensions and improvements to the present plant, and purposes carrying on the business of general castings, engine and boiler rebuilding, and general machinery repairs. It will also deal in new and second-hand machinery of all kinds, mill supplies, etc. The new organization became effective June 21, and business started immediately.

Horizontal Boring Machine

A Table Type Combination Tool Adapted for Drilling, Milling and Tapping and Possessing Centralized Control

For performing boring, milling, drilling and tapping operations and also those of splining, oil grooving and thread cutting when desired at the same setting of the work, the Rochester Boring Machine Company, Rochester, N. Y., has brought out a table type of machine. Probably the most striking features of the many original and novel ones embodied in the construction are the simplicity of its design and the centralized control. Every change of feed, speed or traverse in any direction as well as the starting, stopping or reversing of all of these motions is obtained instantly from one position which is convenient for the operator and in addition the whole is so arranged that no two conflicting levers can be engaged at one time. In the design and construction of the machine advantage has also been taken of the fact that it is easier to adjust and operate a saddle of relatively small constant weight and counterbalanced, than to adjust the work which varies in weight and dimensions to the tools. By using a revolving table mounted upon the regular one supplied with the machine it is possible to finish the different sides of the work complete with one setting as the cutters or the tools can be more easily changed in the machine than to transfer the work to several machines for each different operation, and at the same time the possibilities of error with each setting are also avoided. Fig. 1 is a view of the machine while details of the feeding and driving mechanism and of the spindle limit stops are given in Figs. 2 and 3, respectively.

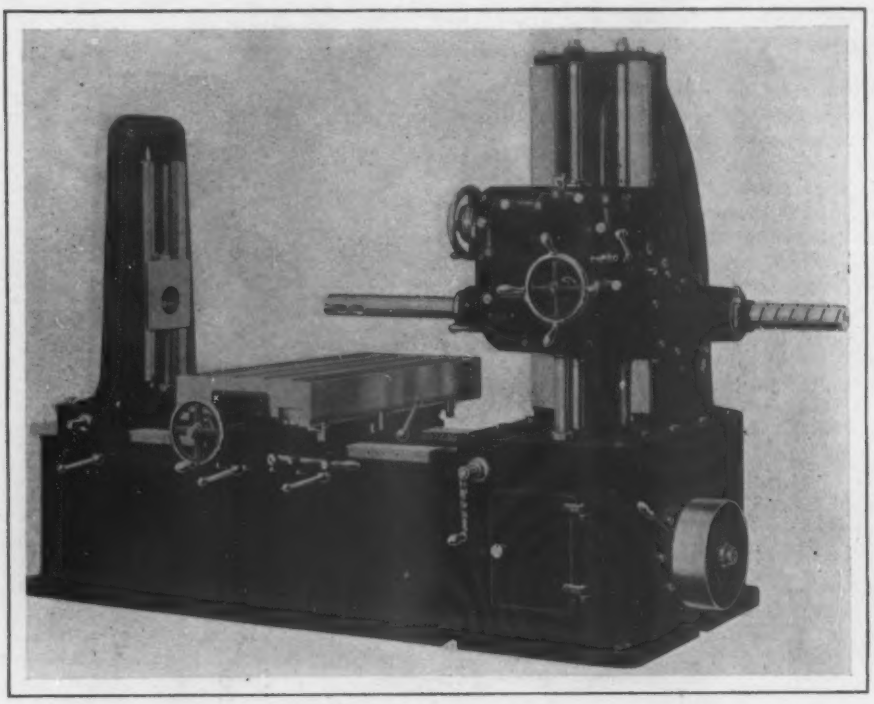


Fig. 1—The New Table Type Horizontal Boring, Drilling, Milling and Tapping Machine Built by the Rochester Boring Machine Company, Rochester, N. Y.

By centralizing the driving and feeding mechanism in the saddle or head, an unusually simple design has been developed which insures maximum efficiency and power transmission through the elimination of superfluous joints, shafts and gearing and the aim throughout has been to make the drive as direct as possible so that the power developed will be used in producing work and not in overcoming friction in the machine itself. When the machine is motor driven, the power is applied directly to the vertical driving shaft and when a belt drive is employed, the machine is belted directly to the shaft, the clutch for starting and stopping being located in the main driving pulley. Like the stationary and portable horizontal boring machines which were illustrated in *The Iron Age*, June 8 and September 30, 1910, respectively, the screw feed principle is employed in the feeding of the spindle, an arrangement which is used exclusively in the machines built by this company. In this way a continuous feed of any length of spindle is secured, the feed being applied concentrically with the spindle and between the two main bearings, thus doing away with the overhang at the end of the saddle.

Referring to Fig. 2, it will be noticed that the spindle has its own independent bearings *a*, at the extreme end of the saddles, giving a very rigid support. These are of phosphor bronze, tapered and quickly adjustable on the outside in case of wear. The spindle sleeve *b*, on which the driving gears *c* are mounted has its own independent bearings and clearance is provided between the sleeve and the spindle so that neither one comes in contact with the other and the possibility of transmitting vibration to the work is also eliminated. The spindle is rotated by the long spline keys *d*, fitting in the driving sleeve and engaging the double splines in the spindle, which gives a balanced system of driving. The spindle sleeve *b* has gear teeth cut on one end which mesh with the three pinions *e* that are mounted on the studs forming a part of the differential feed driving gear *f*. Through the double internal gear *g* and another set of three pinions *h*, which mesh with the spindle feed nut *i*, the nut is positively rotated at the same speed and in the same direction as the spindle as long as the feed drive gear remains stationary, which is the case when the feeds are disengaged. If feed is applied, the spindle nut is ro-

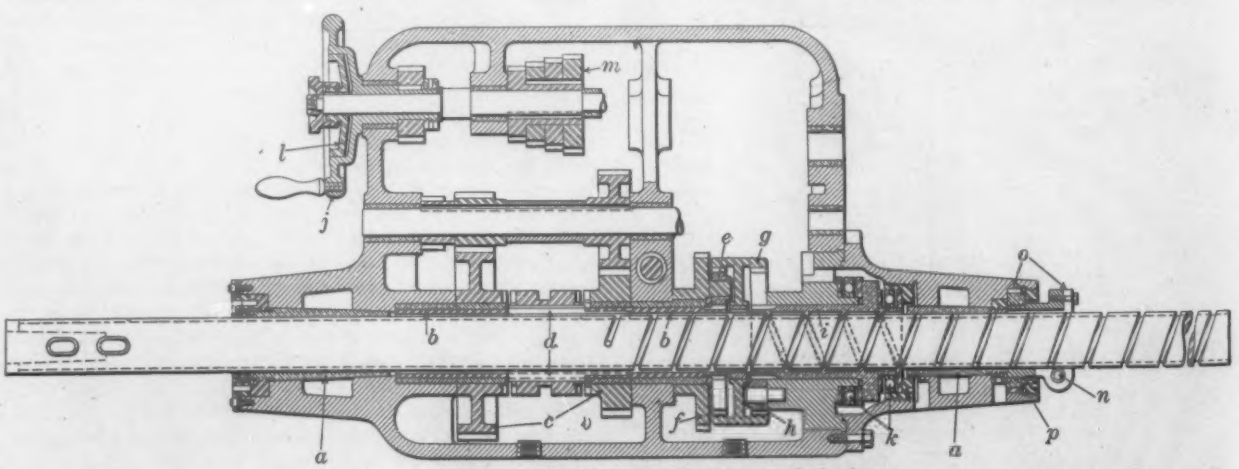


Fig. 2—Details of the Feeding and Driving Mechanism

tated faster than the spindle, the feed drive gear being accelerated according to which feed change gear is engaged, or slower than the spindle differential speed between the nut and the spindle which gives feed in either direction. Through positive planetary gearing the bar is controlled by operating the hand-wheel *j* whether at rest or running. The nut comes in contact only with the sides of the thread and end thrust in either direction is taken directly on large diameter ball-bearings *k*. Instead of the usual line contact between the tooth of the gear and the rack, the square thread in the nut meshing for its full length with the thread on the spindle, provides a long bearing and as the two rotate together the possibility of wear is very remote. End thrust for milling is taken directly in the saddle with a bronze thrust bearing independent of the end thrust bearing for boring. All the feeds of different parts before being applied are transmitted through a friction clutch, *l*, so as to make it possible to engage or disengage them instantaneously. This also acts as a safety device against damage or accident, since it gives a yielding point for the feeds when desired. With this exception all the feeds are positive.

The feed reversing mechanism is located at the source of power for the feed, the arrangement having the advantage that the feed can be quickly reversed when desired without stopping the machine since the moving parts at this point run at a good speed and with a light load. This new feed reversing principle possesses a number of advantages, such as the elimination of all keys, tumblers and bevel gears and the application of the drive at the periphery of the gear instead of at the center, which makes it very powerful. In shifting from one gear to another by the feed change gears driving the shaft, the rack is cut on one end, and the shifting is readily obtained by a gear segment. Sixteen boring and drilling feeds are provided and the same number of milling feeds are available for the saddle and the table. The feeds and the operating levers apply to the spindle, the saddle and the table or the carriage. Power rapid traverse at a constant speed and independent of the speeds is provided for the spindle, the saddle, the table and the carriage. Automatic limit stops are also arranged for all traverses in every direction in addition to adjustable knockouts for the table feeds.

The driving shaft which is made of nickel chrome steel has double driving keys fastened solidly upon it. The main high speed clutches used in starting, stopping and reversing the machines are conveniently located at the front of the saddle and are connected thereto. Two bevel gears operated by the reversing clutch and engaging a third, drive the first speed shaft on which three speed change gears are mounted. The speed back gears double this number of changes and by the engagement of the spindle gears, twelve speed changes are available for the spindle. It is emphasized that in the design it is impossible to engage two conflicting levers and no two feeds, speeds or traverses can be engaged simultaneously. All the drive and feed gearing is inclosed and runs in an oil bath.

The bed is arranged with a continuous web construction and is closely ribbed in both directions to secure additional strength. The main drive is through the bed to the operating mechanism and it can be arranged either parallel to the machine or at right angles, using the same parts for either drive and the machine is so built that it can be readily changed by the user at any time. Chutes are provided in the bed for removing the chips at the rear and a reservoir is located at the end for the use of cutting oils or lubricants.

An oil pump lifts the lubricant to the reservoir at the top of the saddle and from there it is distributed by leaders to the different bearings, the overflow running over the gears thus giving an automatically actuated oiling system.

The main column in which the counterweight for the saddle travels is bolted to the bed and is of deep section and large surface. The design of the carriage and table is such that unusual strength is provided through the deep section and the continuous bottom. This arrangement also permits the table mechanism to run in oil at all times.

The vertical shaft in front of the saddle is directly connected to the gearing in the saddle and the feeds and traverses are transmitted through this and the shaft in the bed to the table. At the table the feed is distributed either for cross feed of the table or to elevate the saddle and its outer support. This arrangement, it is emphasized, combined with the use of large diameter shafts and accurately cut screws insures an absolutely uniform vertical travel of the saddle and its outer support. The locking binder for the table is conveniently located in the carriage and the clamping of the table is always directly under the spindle where the work is being done. Power cross feed is provided for the table for all machines and power lateral traverse for the carriage along the bed is supplied when specified. The column for the outer support is removable from its base without disturbing the alignment and the operation connections and an indicator is provided so that the support can be replaced and its bearing lined up with the spindle without readjustment. The gear meshes with the traverse screw and acts like a rack and pinion in traversing the outer support along the bed, its movements being controlled by the crank handle. All the screws including that for moving the carriage laterally are located between the ways in the center of resistance and in this way it is pointed out that all swiveling and cramping action is done away with and no undue strain is required for guiding. The nuts for the screws are made in two parts to give a means for taking up wear and back lash. One part of the nut has a flange and backs up against the side of the piece and the other part of the nut is adjustable but does not rotate. A threaded collar in the nut enables proper adjustment to be made

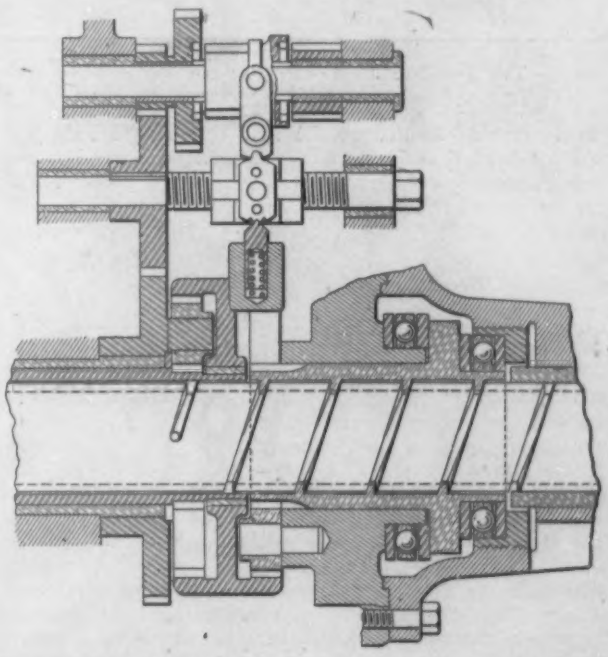


Fig. 3—An Enlarged Sectional View of the Spindle Limit Stops

for wear and back lash and all nuts resting on screws have independent bearings from the thread.

The knockout or limit stop for the spindle travel is shown in Fig. 3. An intermediate gear, located between the feed change gears *m*, Fig. 2, and the feed drive gear *f* rotates the screw to which it is applied, the lead of the screw thread being so proportioned as to move a nut a certain predetermined distance which represents the limit travel of the spindle. When the nut reaches the extreme of its travel on the screw a lever segment is automatically actuated and disengages the feed back gear, throwing it to neutral and thus stopping the feed in both directions.

The machine is also arranged for splining by using the power rapid traverse driving the spindle in and out without rotating. When it is desired to perform this operation, the spindle gear clutch is brought to a neutral position, disengaging the spindle driving gears and a key is inserted in the milling clamp collar *n* at the end of the saddle, this key also engaging one of the splineways in the spindle. The milling collar is held from rotating by a friction band which is tightened by a thumb screw, *o*, on

the outside of the bonnet while splining. In this way the collar and the spindle are secured against relative rotation while the spindle is guided in its longitudinal motion by the key. Spiral oil groove cutting of different pitches can also be obtained with this machine by using the power rapid traverse for traversing the spindle and at the same time engaging one of the spindle speeds, thereby rotating the spindle. By combining direct and back gears for the feeds and the twelve speed changes for the spindle different pitches of oil grooves or threads can be cut. When this work is being done the slotting or clamping collar is disengaged.

The end thrust when milling is taken by a bronze thrust bearing located at the rear end of the saddle *p*, which forms a part of the milling clamp collar. For the convenience of the operator in boring, there is an indicator on the front nose of the saddle showing the spindle center.

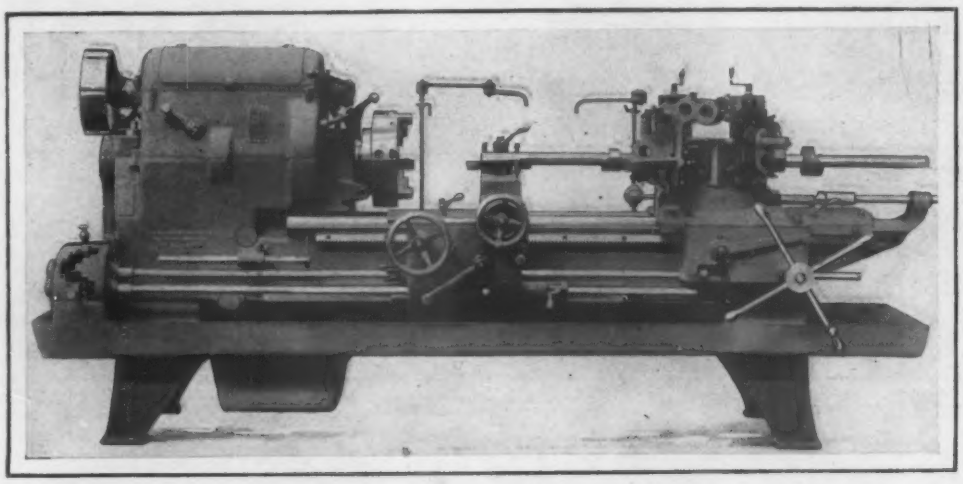


Fig. 1—The New No. 3A Hollow Hexagon Turret Lathe with Chuckling Equipment Built by the Warner & Swasey Company, Cleveland, Ohio

The Battleship Appropriation

In speaking of the appropriation bills which are pending in Congress, our Washington correspondent says: "The Naval bill, as it passes the Senate, will carry an appropriation for two battleships, an amendment that was inserted by the Senate committee, for the bill as it passed the House made no provision whatever for an addition to the number of ships of this class. Already there are indications that the House will accept one battleship, notwithstanding the caucus agreement to the contrary, but the friends of a large navy will insist upon two battleships. If Admiral Dewey's advice is followed, provision will be made for four ships, for the admiral maintains that two battleships a year will merely keep the navy at its present maximum strength and that unless the number be materially increased the United States will within a few years drop below Japan and rank fourth in the list of great naval powers."

Lake Superior Mining Institute.—The Lake Superior Mining Institute will hold its seventeenth annual meeting in the copper country of Michigan, with headquarters at Houghton, on Wednesday, Thursday and Friday, August 28, 29 and 30. The subjects to be discussed are "Uniform Mining Laws," "Workmen's Compensation Law," and "Safety Appliances." F. W. Denton, Painesdale, Mich., is president and A. J. Yungbluth, Ishpeming, Mich., is secretary.

The Lima Locomotive Corporation will succeed the Lima Locomotive & Machine Company, Lima, Ohio. It will take over the plant and will make large improvements. The company has sold $2,000,000 first mortgage 6 per cent 20-year bonds to Redmond & Co., New York City, to provide funds for these extensions, increasing its capacity to about 1000 locomotives annually. Merle Middletown has been named chairman of the board, and A. L. White is president and general manager of the new corporation.

New Hollow Hexagon Turret Lathe

Heavy Duty Bar and Chuck Work the Field of the Latest Warner & Swasey Product

Two important additions have recently been made to its line of hollow hexagon turret lathes by the Warner & Swasey Company, Cleveland, Ohio. Both machines are designed for heavy duty bar and chuck work. One of these is a redesign of the company's No. 3A machine which was illustrated in *The Iron Age*, June 8, 1911. The changes and improvements which have been made were the result of a year's service in various shops and the lathe has been made heavier and several changes have been made in its specifications. A solid tool post in which the tools are held with wedges has been substituted for the four separate tool holders with which the original machine was equipped and the turret saddle has been entirely redesigned The capacity of the machine has also been increased to take bar stock up to 3¼ in. in diameter instead of the former maximum of 3⅛ in. This machine can turn any length up to 36 in. and with the chucking outfit castings and forgings up to 15 in. in diameter can be handled. Following the same general design as the No. 3A machine the company has brought out another machine of a smaller capacity which is known as the No. 2A lathe. This machine will take bar stock up to 2¼ in. in diameter and will turn lengths up to 26 in. With the chucking outfit castings and forgings up to 12 in. in diameter can be handled. Both machines are powerful turret lathes of large capacity, specially constructed for the rapid, accurate and economical production of duplicate parts from bar stock, forgings and castings. While they are intended primarily for manufacturing, their wide range and tool equipment are said to make them well adapted for the production of a large variety of both bar and chuck work where but few pieces of a kind are required. In this way the essential features of a turret lathe are claimed to be combined with those of an improved engine lathe. Fig. 1 is a view of the No. 3A lathe, while Fig. 2 shows the headstock and turret with the taper attachment mounted on the carriage.

The one feature of these two machines that makes great production possible is the carriage with the square turret tool post having feeds independent of the turret saddle. It can be readily understood that in this way two cuts at a

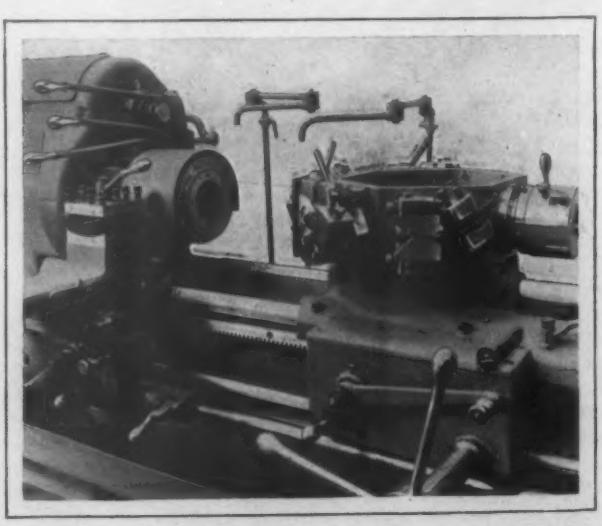


Fig. 2—View of the Headstock and Turret Showing Taper Attachment on the Carriage

time are possible. For instance on bar work the carriage may be turning two diameters and cutting off the stock while the turret tools are operating on the other end. On chucking work a casting may be faced and turned while boring or drilling operations are being carried on by the turret. The feeds with the ample stops make this practicable as work to a size is certain without measurements being taken by the operator.

The head and bed of the machines are cast in one piece and this feature with the wide span of the heavy ways insures great strength and rigidity. The legs have a very wide spread, thus eliminating vibration during operation. The No. 3A machine shown in Fig. 1 is furnished with a single-pulley constant-speed drive and can be belted directly to the lineshaft or a constant-speed motor.

Twelve speed changes are provided for the spindle, ranging from 8 to 227 r.p.m. These are obtained by sliding gears in the head operated by the small lever in front and are doubled by the friction clutches on the back gear shaft which are operated by the two levers at the front of the head. The upper lever operates the friction reversing clutch. The levers are within easy reach of the operator. The automatic chuck is operated by the long lever in front of the head. The jaws are hardened and ground and adjustable from actual size to 1/16 in. smaller. They are firmly held in position and do not collapse to interfere with the insertion of a new bar of stock. The stock is fed through the automatic chuck by a ratchet feed which is operated by the lower long lever in front.

The turret is of hollow hexagonal form with a large bearing on the saddle. It indexes and locks automatically. Its locking bolt is located directly under the working tool as far as possible from the center and works vertically into bushings. In addition to the locking bolt a tapered center binding device is provided which automatically clamps the turret to its seat. This arrangement is a distinct advance over the hand binding arrangement generally in use. An automatic corner stock stop gauges the length of the bar when desired. Ample surface is available for attaching tools and long work can pass directly through the turret. The gear box provides ten automatic feed changes for the saddle in either direction. The feed ranges in approximate geometrical progression from 0.10000 to 0.00459 in. per revolution of the spindle. There are 12 independent adjustable turret stops which are indexed with the turret and operate automatically.

The carriage operates on the way on the front of the bed, which has an increased finished bearing on the inside in direct line of thrust and is locked by an additional bearing and gib on the front of the bed. When not in use the carriage can be run out of the way of the turret saddle as it will pass the chuck. The carriage has geared automatic longitudinal and cross feeds, each having the same number of changes and range as the saddle feed. The longitudinal travel has six independent adjustable stops. The cross feed screw has a graduated dial equipped with six indicators and adjustable limit stops. The carriage turret is square and fitted with a lock bolt under the operating tool. The square turret is operated by a binding lever which also operates the lock bolt. The slight backward movement of the lever withdraws the lock bolt and relieves the pressure on the center binding device and permits the square turret to revolve. The carriage turret can be locked in four positions by the vertical lock bolts. A positive drive is assured by the use of geared feeds. The carriage and turret feeds are independent of each other and have adjustable automatic trips. A geared oil pump provides a steady flow of oil to the cutting tools for both the turret and the carriage and operates automatically when the machine is run in either direction. A change has been made in the position of the oil pump which in former machines was driven from a belt that runs in the rear of the headstock. The pump is now located at the end of the headstock and is driven from a pulley at the side of the driving pulley.

In addition to its smaller capacity, the No. 2A lathe differs from the No. 3A, in having the stock fed through the automatic chuck by a power roller feed instead of a ratchet feed and instead of the 12 spindle speeds, this machine has 9 spindle speeds ranging from 15 to 267 r.p.m. The saddle has the same number of automatic feed changes which range from 0.08333 to 0.00377 in. per revolution of the spindle. The longitudinal and cross feeds of the carriage have the same number of changes and range as the saddle feed.

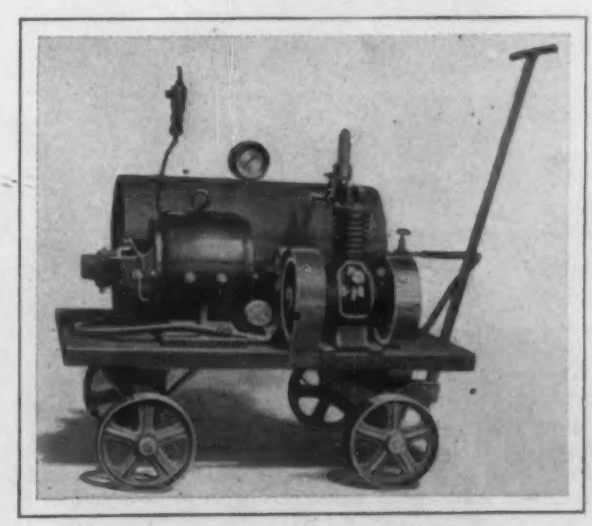
The following table gives the principal dimensions and specifications of the two lathes:

	No. 3A	No. 2A
Swing over bed, in.	20	16½
Swing over carriage, in.	16	12½
Diameter of turret across faces, in.	16½	13¼
Cross travel of carriage, in.	10	7½
Longitudinal travel of carriage, in.	30	26
Diameter of driving pulley, in.	14	12
Width of driving belt, in.	4	3½
Speed of driving pulley, r.p.m.	670	628
Number of spindle speeds	12	9
Threading capacity, in.	2	1¼
Threading capacity with two die heads, in.	3	2
Power required, hp.	5	3
Floor space required, in.	136x48	110x38
Net weight, lb.	7000	4200
Crated shipping weight, lb.	8200	4500
Export shipping weight, lb.	9000	5050
Contents of case, cu. ft.	198	153

This machine can be furnished with complete bar and chucking equipment or both. A screw cutting attachment for cutting internal and external threads can also be furnished as well as a taper attachment for the carriage, which is shown in place in Fig. 2.

Portable Air Compressor

For use in automobile garages and other places where limited volumes of air are required and for starting gas engines, the Gardner Governor Company, Station A, Quincy, Ill., has brought out a vertical air-cooled compressor. This unit can be furnished in a number of different combinations for stationary use and is also made in the portable style illustrated. The compressor is of the semi-inclosed type and grease lubrication is used throughout. The crank pin and piston or wrist pin are lubricated by grease stored within the hollow connecting rod, while the main bearings and the cylinder have compression cups.



The Gardner-Rix Portable Air-Cooled Compressor Built by the Gardner Governor Company, Quincy, Ill.

The crank case and the cylinder are a single casting to insure absolutely perfect alignment and the piston is fitted with two metal rings ground to an accurate fit. Steel ball valves are located in the head, an arrangement which it is pointed out makes the compressor practically noiseless in operation. The crank shafts are drop forgings and the connecting rods which are of the hollow square section are made of a special grade of bronze.

A safety valve located in the head can be set at any desired pressure, thus obviating all danger of explosion in the receiver from excessive pressure. Renewable Parsons white bronze bushings are used for the journal bearings and these can be slipped out and new ones inserted if they become worn.

The special advantage of the portable unit illustrated is that it enables the compressor to be brought directly to the work. The equipment furnished includes the compressor connected to the motor by a gear and rawhide pinion, air receiver, gauges, relief valve, 10 ft. of hose and 20 ft. of insulated wire for making connections with an electric light outlet, the whole being mounted on a substantial four-wheel truck.

Automatic Index Milling Machine

A recent addition to the line of automatic index milling machines built by the Garvin Machine Company, Spring and Varick streets, New York City, is the No. 13½ style. The work which this machine is designed to handle is the automatic fluting of taps and reamers, the cutting of gears, ratchets, etc. and the automatic performance of repetition work. In a number of respects this machine is the same as the company's No. 11 style with the construction modified to include a quick acting work holding apparatus, an

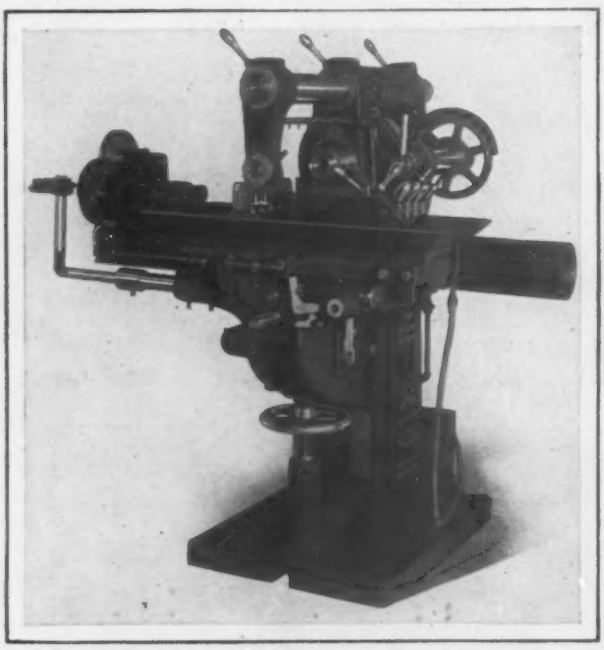


Fig. 1—The No. 13½ Automatic Index Milling Machine Built by the Garvin Machine Company, New York City

automatic index, automatic feed with quick return by a long spring checked by an air cushion and automatic stoppage of the machine when the work is completed. Fig. 1 is a view of the machine, while Fig. 2 gives details of the table quick return and air checking mechanism.

When the cut is finished the machine is tripped by a dog shown to the left on the table, Fig. 1, which releases the latch and permits the worm *a*, Fig. 2, to drop out of mesh with the worm gear *b*. This frees the table from the power feed and it is moved back rapidly to the other extreme of its travel by a spring, *c*, inclosed in a tube at the rear of the table. Before the table reaches its fixed stop its motion is checked by the air cushion *d*, shown at the right of the machine. At the same instant that the dog trips the machine, the stop collar shown on the screw along the front of the table, Fig. 1, comes in contact with the bracket and trips the tilting table *e*, Fig. 2, by operating the cam shaft *f*, thus allowing the return of the work without the cutter dragging. As the table approaches the extreme return position, the right hand dog on the table strikes the stop plunger bringing the worm into mesh again with the worm gear at the same moment the table comes to rest.

When the table comes to rest the stop collar at the right hand end of the screw in front of the table lifts the tilting table back into its working position and also lifts the index pawl so that the dial can index and lets it fall back instantly. The machine is now ready to take another cut and this operation will be kept up continuously until the work is finished. The machine will trip again and on indexing the projecting pin on the indexing dial will push the corresponding sliding pin on the telescope bar shown at the extreme left of the machine, Fig. 1, and knock off the eye of the rope connecting with the spring of the countershaft and thus stop the machine.

The capacity of the machine between centers is 16 in. and a cut 7½ in. long can be taken anywhere in this distance. The centers have a capacity for holding work on all four spindles up to a maximum diameter of 2 in. and on the two outer spindles up to a maximum diameter of 4 in. The weight of the machine is 2200 lb.

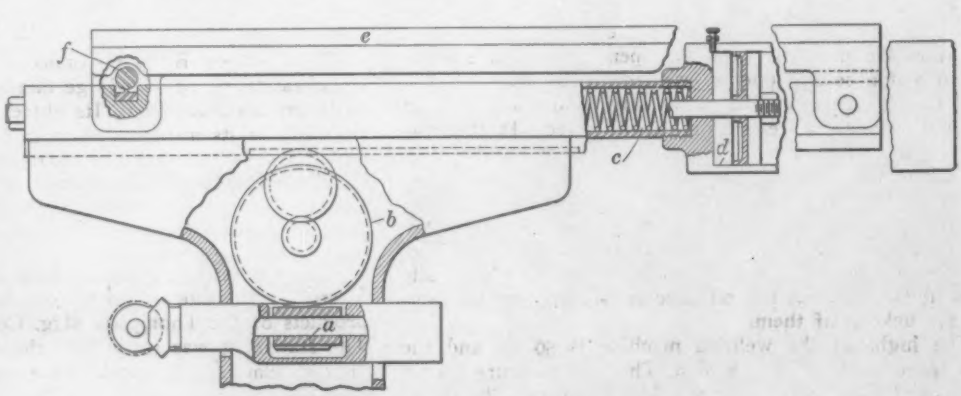


Fig. 2—Details of the Table Traversing Mechanism

Deutsche Machinenfabrik A. G. and Its Welfare Work

The Deutsche Maschinenfabrik A. G., Duisburg, Germany, gives an impressive exhibit of its varied activities and the important place it holds in the industries of Germany, in an amply illustrated pamphlet of 92 pages which has just come from the press. The company was formed by the merger of three firms: Benrather Maschinenfabrik A. G., Benrath; Duisburger Maschinenbau A. G., late Bechem & Keetman, Duisburg; and Märkische Maschinenbau-Anstalt, Ludwig Stuckenholz A. G., Wetter-Ruhr. The amalgamation has a very wide range of production, taking in the building of mining plants, loading and transporting plants, harbor installations, harbor cranes, blast furnaces, steel works, rolling mills, shipyard installations, steel structural work, electric motor trolleys, forgings, air compressors and rock drilling machines. The number of workmen is about 5000 and there are 1200 office employees. The yearly output amounts to 30,000,000 to 40,000,000 marks. The plants of the consolidated company occupy 77.5 acres, of which the area covered with buildings is 29.3 acres. The number of machine tools is 1264 and the number of cranes 191. At two of the plants workmen's dwellings are provided for by private building contractors. At the Wetter works the company has built workmen's houses, which for the most part have four rooms, while a smaller number have three rooms. Adjoining each dwelling is a kitchen garden. At the works, dining rooms are provided and lavatories and baths. The company has arranged for the sale at low prices of coffee and milk and for the retailing of aerated water. At the Duisburg works the late owner, Theodor Keetman, established a fund, the interest of which is used in assisting employees who need help. A school is maintained at which the younger workmen receive instruction, a part of which is given by technical men connected with the works.

Modern salesmanship, in eliminating emphasis on claims and substituting actual visible proof, is exemplified by the manner in which one of the salesmen of the Billings & Spencer Company, Hartford, Conn., L. M. Scofield, sells the company's patent improved model C drop hammer. It appears that it is difficult to make one appreciate fully and quickly the points of the machine by showing a photograph, so a miniature working model of a 3000-lb. hammer was made. The miniature weighs 16 lb. and is readily portable. The Billings & Spencer Company is now using one of the models in the plant at Hartford for instructing workmen in the proper operation of the drop hammers.

New Electric Welding Machines

Details of Two Recent Developments of the Toledo Electric Welder Company

For welding flat tires electrically and also for doing spot welding, the Toledo Electric Welder Company, Cincinnati, Ohio, has brought out two new types of welding machines. The tire machine which is designated as the No. 23 welding machine is illustrated in Fig. 1, while the spot, or No. 24 machine is shown in Fig. 2.

The tire machine shown in Fig. 1 is power driven and will weld flat tires from ¾ x ¼ in. up to 2 x ¼ in. or 1¾ x ⅜ in. Alternating current of any standard voltage from 110 to 550 can be used to operate the machine, a special transformer in the base reducing the voltage of the supply line to 3 to 5 volts which is all that is required in the machine. The use of this low voltage it is emphasized makes the machine absolutely safe and the operator cannot get the slightest shock under any conditions. The use of a regulator enables the operator to control the current and vary the heat according to the size of the stock to be welded. The dies are water cooled, the water being supplied through a ½-in. pipe, while a globe valve reduces the supply to the very small amount required to keep the dies cool. The pressure of the welding heads can be varied according to the size of the stock to be welded.

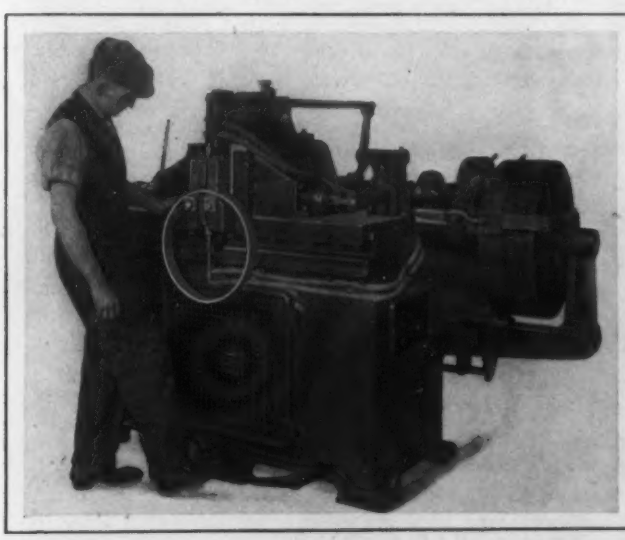


Fig. 1—No. 23 Welding Machine

Fig. 2—No. 24 Welding Machine

Two New Types of Electric Welding Machine Built by the Toledo Electric Welder Company, Cincinnati, Ohio

In operation the tire is placed in the jaws of the machine as shown in the engraving and the foot lever is pressed. The clamping jaws close on the stock and the ends are brought together. This action automatically turns the current on and in a few seconds the iron is brought up to the welding temperature. When the proper degree of heat has been reached a second pressure on the foot lever automatically turns off the current and forces the ends of the stock together, while at the same time two steel dies located between the clamping jaws come together and reduce the fin or projection that is raised, thus leaving the welded portion practically the same thickness as the balance of the stock. At the end of the second operation the dies automatically open and the tire is removed and a second one is inserted by the operator.

With this machine it is possible to weld a 1¼ x ¼ in. tire and turn it out ready for use in 13 sec. In this way from 1800 to 2000 tires can be welded per 10-hr. day by a boy at a total labor cost of from 9 to 10c. per 100. Tires welded by the fire process are said to cost from 80 to 90c. per 100 for pressing, hammering and straightening and the output of three operators is between 500 and 600 per day. The cost of the current for welding the tires electrically is about the same as the oil used in the heating furnaces and the upkeep of them.

The hight of the welding machine is 59 in. and the floor space required is 54 x 78 in. The dies measure 3 x 3 x 3¼ in. and their hight from the floor is 42 in. The diameter of the tight and loose pulleys is 24 in., and the face width is 4¼ in. The belt is 4 in. wide. The speed of these pulleys is 40 r.p.m.

In Fig. 2 the No. 24 spot welding machine is shown attaching spouts to coffee pots. A 2-3 hp. adjustable speed motor furnished the power for driving the machine and welds are made at the rate of from 80 to 150 per minute. The machine works on the same principle as the ordinary power-driven punch press. The operator presses down on a foot treadle and this engages a clutch and starts the machine. When the foot pressure is released the machine stops and the dies are open ready for the next weld. One or any number of welds can be made, the welding dies moving up and down like a sewing machine needle as long as the treadle is kept down. When the dies are brought down upon the stock the current is turned on to make the weld and at the instant the heated metal is forced together the current is turned off. Automatic control is furnished for the current and it is emphasized that there is no possibility of drawing an arc and burning the stock when the die points are drawn apart. Single-phase alternating current is used to operate this machine and when two- or three-phase current is available, one phase of the system can be connected to the welder.

The floor space occupied by this machine is 31 x 34 in., and the overall hight is 56 in. The hight from the floor to the jaw center is 42 in. and the opening of the jaws is 1 in. The distance of the jaws when closed for welding is 4 in. and the distance from the center of the dies to the housing is 6 in.

As an example of the savings effected in the manufacture of sheet steel work, ranging in thickness from ¼ in. to No. 30 gauge by the welding process as a substitute for riveting, sheet steel tool boxes are being made in one shop by a boy with a welding machine instead of nine men who were required under the old method of riveting. In this case the cost of the furnace was reduced over 61 per cent. and another manufacturer in an entirely different line states that three men and a boy operating a welding machine have taken the place of 17 men who were formerly employed in riveting.

The Service Bureau Company, Cincinnati, is a new organization in which a large number of Cincinnati manufacturers are interested. Its object is to assume all traffic troubles for its members, such as furnishing freight rates, collecting claims, etc. John Sargeant, president Domhoff & Joyce Company, is president of the company. R. E. Levassor is vice-president and L. F. Denninger is secretary.

Correction.—On page 1437 of *The Iron Age* of June 6 an unfortunate misprint occurred in describing the products of the Thompson Mfg. Company, Newark, Ohio. The statement was made that the company manufactures "horse" clamps. It should have read "hose" clamps, the company's specialty being the Thompson hose clamp which is intended for use on air hose.

THE IRON AGE

Published Every Thursday by the

David Williams Company
239 West 39th Street New York

W. H. Taylor - *President and Treasurer*
I. A. Mekeel - - - *First Vice-President*
Fritz J. Frank - - - - - *Secretary*
M. C. Robbins - - - *General Manager*

Editors

Geo. W. Cope A. I. Findley W. W. Macon

Charles S. Baur - - *Advertising Manager*

Branch Offices

Chicago: Otis Building Philadelphia: Real Estate Trust Bldg.
Pittsburgh: Park Building Cleveland: American Trust Building
Boston: Compton Building Cincinnati: Mercantile Library Bldg.

Entered at the New York Post Office as Second-class Mail Matter

Subscription price: United States and Mexico, $5.00 per year; to Canada, $7.50 per year; to other foreign countries, $10.00 per year.

CONTENTS.

Forcing the Eight-Hour Day

Labor leaders are ceaseless in their efforts to make general the observance of the eight-hour day. They have succeeded in the building trade in the large cities, and have been successful to some extent in special industries. They have made little headway, however, in securing the adoption of the eight-hour day in general manufacturing lines. Strikes have failed to accomplish this purpose, and agreements with unions on wage scales, even when rather radical provisions are inserted in the interest of employees, carefully fight shy of the eight-hour day.

Failing to accomplish much by direct attack, the advocates of an eight-hour day use municipalities, States and the United States in their efforts to insert a wedge in the fabric of employers' defense which might be driven home and thus break down the hitherto insurmountable opposition. The national eight-hour bill which was signed by the President of the United States on Wednesday, June 19, is one on which the labor unions have been working assiduously for a long time. In the course of its passage through the House of Representatives it was vigorously fought, employers who expected to be affected by its provisions doing what they could either to have it killed or made as inoffensive as possible. When on its way through the Senate, the efforts of employers were continued and the hearings before the Committee on Education and Labor were marked by the presentation of a great deal of information calculated to throw light on the difficulties which would be encountered in the attempt to enforce the provisions of the bill in establishments doing some Government work and a great deal of work for private individuals.

The text of this new labor act will be found on another page in this issue. It should be carefully read by every manufacturer who has either done work for the Government or who is in such position that at any time he may be called upon to furnish work of some kind for the United States. Under the provisions of this bill it will be impossible for any shipbuilder, manufacturer of army or navy equipment or manufacturer of articles of any other kind used by the Government, if he accepts a Government contract or sub-contract, to employ any person on such work more than eight hours in any calendar day. So rigid are the provisions in this act, and so anxious have its authors been to guard against any possible loophole for its avoidance, that no permission is given to any employer to pay his workmen overtime if they should happen to be engaged more than eight hours in any one calendar day. The scheme is to make it impossible to run any part of an establishment doing Government work longer than on an eight-hour basis. This would make an excellent beginning toward the establishment of an eight-hour working day in large manufacturing plants.

Government officials have already been hampered considerably by the fact that a partial eight-hour law has been effective. It has merely been sufficient to cause trouble in placing certain kinds of Government contracts and not of a character to hit any considerable number of contractors. The new act goes much further and is apparently well calculated to cause infinitely more trouble to representatives of the Government. It will be remarkable if the employers who appeared before both houses of Congress to protest against the passage of this act will stultify themselves

by making bids on work coming in their line and thus accept its provisions. The attempt to force the eight-hour day by legislation may prove as ineffective now as at any previous time. It would not be surprising to find this act largely nullified by the absence of bids on Government work. The eight-hour day will come when our economic conditions favor it, but never by force, even though it takes the semblance of law.

Probable Pig Iron Production in 1912

The prospects are that pig iron production in the United States in the current year will not be far from 29,000,000 gross tons. Unless it falls more than 1,700,000 tons short of this amount, a new record for a calendar year will be made, as the best calendar year has been 1910, with 27,303,567 tons. Unless production exceeds this amount by almost a million tons, the calendar year's output will not make a new record for 12 consecutive months, since in the 12 months ended June 30, 1910, the output was 29,751,863 tons, while in the 12 months ended July 31, 1910, the output was about 29,800,000 tons, this remaining to-day as the greatest production in any 12 consecutive months.

At this time we have the actual record, from *The Iron Age* monthly reports, of pig iron production during five months of the year, and we have a market situation which indicates that during the remainder of the year there will be relatively little variation from the current rate of output, so that a forecast of the year's results can be made with less allowance for probable error than is usually the case. Our monthly records cover only coke and anthracite pig iron production, and we adopt an estimate of charcoal production for the year of 275,000 tons, which is not far from last year's output. Production of coke and anthracite pig iron has been as follows:

Months.	Tons.
January	2,057,911
February	2,100,815
March	2,405,318
April	2,375,436
May	2,512,582
Five months	11,452,062

The production of pig iron, including charcoal iron, in the above five months was at the average rate of 27,775,000 tons annually; but if the daily rate on June 1, 81,435 tons, were maintained during the remaining seven months of the year the 1912 output would be about 29,150,000 tons.

The probable error in a forecast of 29,000,000 tons for the year, in the light of possible commercial developments, can be most conveniently discussed by observing how much of a change in the daily rate would be required to produce totals of 28,000,000 and 30,000,000 tons respectively for the year. Below we set down the respective daily rates, for the last seven months of the year, of coke and anthracite furnaces, to produce the different results.

Actual	Tons Daily.
Rate on June 1	81,435
Rate to produce 28,000,000 tons	76,041
Rate to produce 29,000,000 tons	80,714
Rate to produce 30,000,000 tons	85,387

Allowance must be made for the fact that the furnaces in blast June 1 were operating under favorable weather conditions, whereas the output of the same furnaces in July and August would undoubtedly be somewhat below their ratings. Mathematically, the continuance in blast of the same furnaces as on June 1 would make about 29,150,000 tons for the year, but practically the July-August loss would probably be sufficient to bring the total out at about 29,000,000 tons. Hence an exact continuance of present conditions would indicate 29,000,000 tons rather than 29,150,000 tons.

We may now observe that for the year's total to vary by 1,000,000 tons from 29,000,000 tons would involve a change in the daily rate, for seven months, of 4673 tons, equivalent to about 10 moderately large stacks. The average rate of the 247 coke and anthracite stacks blowing on June 1 was 330 tons, many of the 247 being relatively small stacks. An increase or decrease in the active capacity equivalent to ten moderately large stacks would not of course be at all remarkable, but for a change of 10 stacks in the active list to effect a change of 1,000,000 tons in the calendar year's total would require the change to date from the beginning of June. Should the change date from the middle of September, it would require twice as large a daily capacity to go out or come in to change the calendar year's total by a million tons. Thus such a change seems quite unlikely. Current market prospects are, on the whole, favorable to an increase rather than a decrease, but against this fact must be set two considerations: 1. Normally production is likely to decline slightly in the two closing months of the year. 2. There is more leeway for active capacity to decrease than there is for it to increase.

Assuming that there will be no material variation until the middle of September, a drop at that time to the low rate of last July would reduce this year's total from 29,000,000 tons by 2,500,000 tons, whereas to effect a similar increase would require that there be blown in at that time additional furnaces having a capacity of more than 8,000,000 tons annually. There is not, of course, anything like this amount of idle capacity commercially available. Were there sufficient idle blast furnaces to make up such a total, ore and coke for all of them could not be made available upon such short notice. Thus we may conclude that while current market prospects may be more favorable to an increase than a decrease in production, the possibilities are greater on the side of a large decrease than on the side of a large increase, while weighing all the probabilities and possibilities the conclusion is that the present calendar year's pig iron production is more likely to show a variation of less than a million tons than to show a variation of more than a million tons from 29,000,000 tons.

New Open Hearth Steel Capacity

In the years 1908 to 1911 inclusive there was almost a complete suspension of new steel works construction in the Central West, or, more specifically speaking, in the Pittsburgh, Cleveland, "Valley" and Wheeling districts. With the slump in the steel trade that came with the financial panic of 1907, steel companies at once began to retrench and practically all new work stopped. In the next four years of lean orders for finished material, there was plenty of Bessemer and open hearth capacity to meet promptly the existing demand; but with such a volume of business as has flooded the mills in the past few months there has been, as frequently pointed out, a decided scarcity in open hearth steel, and sheet and tin plate mills have been at times seriously embarrassed in their oper-

ations by the failure of the steel companies to furnish bars as fast as needed. It is evident that there is not enough open hearth steel capacity to permit the finishing mills in the Central West to run full. This condition will be remedied, however, when the steel works are completed that are now under construction or that are planned. The list is really an impressive one.

In the Youngstown, Ohio, district, two open hearth plants are under way, one by the Brier Hill Steel Company and the other by the Youngstown Sheet & Tube Company, which represent together more than 2500 tons a day. Both these plants are expected to be in operation in the summer or early fall of 1913. In the Pittsburgh district, the Pittsburgh Crucible Steel Company's new construction includes the building of six 70-ton furnaces at Midland, Pa., that will turn out 1000 to 1100 tons of open hearth steel per day. The Carnegie Steel Company will build fourteen 60-ton furnaces at Bessemer, Pa., with a daily capacity of close to 2000 tons. The Pittsburgh Steel Company is building two 90-ton open hearth furnaces at Monessen, Pa., with a capacity of about 400 tons a day, and when these are finished the company will likely add two of the same capacity. The Cambria Steel Company at Johnstown will build three 75-ton open hearth furnaces at its Franklin works, giving it about 500 tons more steel per day.

In addition to the above new construction that is assured, a leading tin plate and sheet interest has tentative plans made for the building of a large open hearth plant and another sheet company is figuring on open hearth furnaces with a daily capacity of more than 1000 tons. The La Belle Iron Works at Steubenville will add one, and possibly two, open hearth furnaces at Steubenville to take care of some new sheet and jobbing mills. Other makers of finished iron and steel in the Pittsburgh and Valley districts that have no steel capacity at present, and have had trouble in getting steel promptly, have been taking estimates on open hearth furnaces, and definite announcement of the building of additional works may be made before this year is out. A notable feature in connection with all this new open hearth construction is that with one exception it will be built by what are known as independent companies, some of whom already have steel capacity, but not enough to supply their own consumption. In the case of the Youngstown Sheet & Tube Company, while the company does not at present make any open hearth steel, it finds it desirable to be prepared to meet the wants of customers who may specify such steel.

If the new construction now under way is completed, together with that now being planned and which seems certain to be built, the fall of 1913 will see an increase in open hearth steel capacity in the Central West of not less than 7500 tons a day. The fact is being more and more recognized that finishing mills that must buy steel in the open market are handicapped in being unable to get steel promptly when consumption is crowding the mills, as is the case at present, and often must pay considerably higher prices for steel than the cost of making it at their own steel works. Had it not been for the starting up early in the year of the four Talbot steel furnaces at Aliquippa, which were a conspicuous exception to the general abstention from new construction work in 1908-11, the situation in the Pittsburgh district would have been a good deal worse, and there are some steel consumers who will testify that it was bad enough. The leading consumer of sheet and tin plate bars has had to go out in the open market several times and buy steel because of delayed deliveries from an affiliated company that could not meet the demands on it, in spite of its enormous capacity. It may be expected, however, that by the fall of 1913 the increase in steel output will be sufficient to meet consumption, even with the finishing mills running to their utmost. Then will ensue what has happened before—additions to finishing capacity, which will again throw the situation out of balance. But that is a bridge which the steel trade need not prepare to cross just yet.

Steel Corporation Employees

Measures Recently Taken in Their Interest Are Described in a Letter to Stockholders

Chairman E. H. Gary of the United States Steel Corporation has addressed a letter to stockholders of the corporation. It is dated May 28, 1912, and gives the latest developments in the effort to reduce Sunday labor to a minimum at the plants of the various subsidiaries and in other ways to improve the condition of employees. With it is transmitted to each stockholder a copy of the report of the committee to investigate labor conditions at Steel Corporation plants which was presented at the annual meeting in April. The full text of Judge Gary's letter follows:

To the Stockholders of United States Steel Corporation:

Enclosed herewith is a copy of the report of the committee of stockholders appointed at the annual meeting on April 17, 1911, to investigate conditions of labor in our mills. To this subject the officers of the United States Steel Corporation and its subsidiary companies had already given earnest consideration. For ten years we had been improving the conditions of our workmen as fast as practicable. Nevertheless, we did not resent the appointment of a committee of stockholders to investigate these matters. As holder of the proxies for a majority of the stockholders I voted in favor of the resolution and it was adopted. The committee was made up of five prominent stockholders, and every opportunity for a thorough investigation was afforded them. No amount of trouble was spared, and the expense of the investigation and report to all the stockholders is large. The report of the committee was presented at the annual meeting on April 15, 1912, and a copy is being sent to every stockholder. We believe the report reflects great credit upon the committee, to whom the stockholders are indebted for the full performance of an arduous duty. The report covers four subjects enumerated as follows by the committee:

(*a*) The seven-day week and long turn.
(*b*) The twelve-hour day.
(*c*) The speeding of the workmen.
(*d*) The repression of the men.

Briefly stated, the findings of the committee upon these four subjects are as follows:

Seven-Day Week and Long Turn

1. With respect to the seven-day week and long turn, the committee says: "The records of today indicate that with the exception of two or three plants the seven-day week has been relegated to the past." The committee adds that this should "be absolutely enforced at all times in all mines, mills, shops, railroads, docks and works of the Steel Corporation."

The committee believes "that it is feasible and practicable to eliminate the long turn formerly followed in the changing of shifts in continuous process work, and that it should be done. Further, that conscientious effort should be made by all to reduce to a positive minimum any undue length in work hours that emergencies and unforeseen conditions may sometimes demand."

The Finance Committee recommended the elimination of seven-day labor as long ago as April 23, 1907, and the stockholders' committee reports that this recommendation is being observed; but to leave no room for doubt, the Finance Committee has now adopted the following resolutions:

Resolved, That in accordance with the spirit of the res-

olution adopted by this committee on April 23, 1907, seven-day labor should be eliminated in all mines, mills, shops, railways, docks and works of the Steel Corporation, except under special circumstances and then only upon the consent of this committee.

Resolved, That the so-called long turn, formerly followed in the change of shifts in continuous process work, shall be eliminated or reduced in all cases where it now continues among employees of the subsidiary companies, except under special circumstances and then only upon the consent of this committee.

Resolved, That conscientious effort should be made by all to reduce to a minimum any unusual length in work hours that emergencies and unforeseen conditions may sometimes demand.

Resolved, That copies of these resolutions be sent to the presidents of all the subsidiary companies with the recommendation that all operating officials be governed accordingly.

Twelve-Hour Day, Open Shop and "Speeding"

2. With respect to the twelve-hour day, the stockholders' committee says: "That steps should be taken now that shall have for their purpose and end a reasonable and just arrangement to all concerned of the problems involved in this question—that of reducing the long hours of labor—we would respectfully recommend to the intelligent and thoughtful consideration of the proper officers of the corporation."

In response to this recommendation, the Finance Committee has passed the following resolution:

Resolved, That the chairman, Mr. Roberts, and the president of the corporation be appointed a committee to consider what, if any, arrangement with a view to reducing the twelve-hour day, in so far as it now exists among the employees of the subsidiary companies, is reasonable, just and practicable.

3. With respect to the alleged "speeding of the workmen," the stockholders' committee says: "Our observation of labor conditions in the mills of the Steel Corporation does not lead us to believe that there is either desire or tendency on the part of the foremen and superintendents to pursue these policies to a point that would mean harm or injury to the men under their charge.

4. With respect to the so-called "repression of the men," the stockholders' committee finds "that the Steel Corporation, in view of the practices often pursued by labor organizations in steel mills in past years, is justified in the position it has taken." That position is an adherence to the principle of the open shop which permits any workman to labor whether he is a member of a union or not.

Large Outlays

The report of the stockholders' committee contains a summary of certain plans which the corporation has put in force for the benefit of its workmen, namely, accident prevention, accident relief, pensions, sanitation and welfare and employees' stock subscription. It is proper that the stockholders should know what is being spent annually for thus bettering the conditions of the workmen. This aggregate annual expenditure, which would otherwise be available for dividends, is as follows:

Relief for men injured and the families of men killed, which is paid in all cases regardless of legal liability, costs each year, approximately	$2,000,000
Accident prevention, in which we have probably the most effective system in the United States, costs each year, approximately	750,000
Sanitation and welfare work of all sorts, which we are now developing, costs already each year, approximately	1,250,000
The pension fund, which provides support for superannuated employees, requires each year:	
(*a*) for pension payments, approximately	200,000
(*b*) for the creation of a permanent fund to be completed in 13 years	500,000
The employees' stock subscription plan costs each year, approximately	750,000
Total annual expenditures for improving the conditions of workmen, approximately	$5,450,000

Wages have not been reduced, but on the contrary have been increased nearly 25 per cent. since the corporation was organized; and the workmen have not been required to contribute in any way to the expenditures for their benefit.

While we believe all our stockholders will approve these expenditures, we have not felt that the amount should be increased more rapidly, or that conditions which have existed ever since the industry was established could practically be improved with greater rapidity than we have been endeavoring to improve them.

In conclusion, the stockholders' committee recommends that hereafter and at stated periods correct and reliable first hand information as to these matters and the advancement and betterments being effected be furnished to all stockholders. This recommendation is under consideration by the Finance Committee, which has directed a plan to be prepared and reported to it.

In evidence of the long continued and earnest consideration given to improving the conditions among workmen of the United States Steel Corporation there are enclosed copies of a number of statements with respect to these matters made for the corporation by the chairman at intervals ever since 1904. They show the principles which the officers and directors of the corporation have tried to inculcate and to follow.

ELBERT H. GARY,
Chairman.

The National Eight Hour Law

Important to Those Doing Government Work

On June 19 President Taft signed the act of Congress limiting to eight hours in any one calendar day the employment of laborers and mechanics engaged on Government work. When the act was being considered in the course of its passage through Congress, several references were made to it in these columns. Now that the measure has become law, our readers will undoubtedly desire to be informed as to its exact stipulations. We therefore present below the full text of the act:

An act limiting the hours of daily service of laborers and mechanics employed upon work done for the United States, or for any Territory, or for the District of Columbia, and for other purposes.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That every contract hereafter made to which the United States, any Territory, or the District of Columbia is a party, and every such contract made for or on behalf of the United States, or any Territory, or said District, which may require or involve the employment of laborers or mechanics shall contain a provision that no laborer or mechanic doing any part of the work contemplated by the contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work; and every such contract shall stipulate a penalty for each violation of such provision in such contract of five dollars for each laborer or mechanic for every calendar day in which he shall be required or permitted to labor more than eight hours upon said work; and any officer or person designated as inspector of the work to be performed under any such contract, or to aid in enforcing the fulfillment thereof, shall, upon observation or investigation, forthwith report to the proper officer of the United States, or of any Territory, or of the District of Columbia, all violations of the provisions of this act directed to be made in every such contract, together with the name of each laborer or mechanic who has been required or permitted to labor in violation of such stipulation and the day of such violation, and the amount of the penalties imposed according to the stipulation in any such contract shall be directed to be withheld for the use and benefit of the United States, the District of Columbia, or the Territory contracting by the officer or person whose duty it shall be to approve the payment of the moneys due under such contract, whether the violation of the provisions of such contract is by the contractor or any subcontractor. Any contractor or subcontractor aggrieved by the withholding of any penalty as hereinbefore provided shall have the right within six months thereafter to appeal to the head of the department making the contract on behalf of the United States or the Territory, and in the case of a contract made by the District of Columbia to the Commissioners thereof, who shall have

power to review the action imposing the penalty, and in all such appeals from such final order whereby a contractor or subcontractor may be aggrieved by the imposition of the penalty hereinbefore provided such contractor or subcontractor may within six months after decision by such head of a department or the Commissioners of the District of Columbia file a claim in the Court of Claims, which shall have jurisdiction to hear and decide the matter in like manner as in other cases before said court.

"SEC. 2. That nothing in this act shall apply to contracts for transportation by land or water, or for the transmission of intelligence, or for the purchase of supplies by the Government, whether manufactured to conform to particular specifications or not, or for such materials or articles as may usually be bought in open market, except armor and armor plate, whether made to conform to particular specifications or not, or to the construction or repair of levees or revetments necessary for protection against floods or overflows on the navigable waters of the United States: *Provided*, That all classes of work which have been, are now, or may hereafter be performed by the Government shall, when done by contract, by individuals, firms, or corporations for or on behalf of the United States or any of the Territories or the District of Columbia, be performed in accordance with the terms and provisions of section one of this act. The President, by executive order, may waive the provisions and stipulations in this act as to any specific contract or contracts during time of war or a time when war is imminent, and until January 1, 1915, as to any contract or contracts entered into in connection with the construction of the Isthmian Canal. No penalties shall be imposed for any violation of such provision in such contract due to any extraordinary events or conditions of manufacture, or to any emergency caused by fire, famine, or flood, by danger to life or to property, or by other extraordinary event or condition on account of which the President shall subsequently declare the violation to have been excusable. Nothing in this act shall be construed to repeal or modify the act entitled "An act relating to the limitation of the hours of daily service of laborers and mechanics employed upon the public works of the United States and of the District of Columbia" being chapter 352 of the laws of the Fifty-second Congress, approved August 1, 1892, as modified by the acts of Congress approved February 27, 1906, and June 30, 1906, or apply to contracts which have been or may be entered into prior to the passage of appropriation acts approved prior to the passage of this act.

"SEC. 3. That this act shall become effective and be in force on and after January 1, 1913."

Immediately after signing the act the President issued an executive order exempting Government work done in carrying out contracts in connection with the Panama Canal until January 1, 1915. The canal will be finished before that date, according to the engineers.

Receivers for Alabama Consolidated

At Trenton, N. J., June 21 Vice-Chancellor Howell appointed receivers for the Alabama Consolidated Coal & Iron Company in proceedings brought by the American & British Mfg. Company. This follows an unsuccessful attempt to reorganize the coal and iron company. The receivers are Halsey M. Barrett of Newark, N. J., and Parry Coffin and Harrison S. Matthews of Birmingham, Ala.

In addition to a heavy bonded indebtedness, on which default has been made, the company had a current liability April 31 of $726,485. A payroll aggregating $40,000 was not met last week, and on June 22 a like amount would also become due.

The corporation has an outstanding capital of $3,750,000. Against all its property there are three sets of bonds outstanding aggregating $9,000,000. Last month the company defaulted in the payment of interest on the first series to the extent of $41,950. The Baltimore Trust Company has a claim of $330,000 against the company on promissory notes, but has been restrained by the Maryland courts from disposing of $1,250,000 of bonds held as collateral. A balance sheet of the company shows a surplus of $693,134 and available current assets of $577,699. The company's inability to finance its affairs is attributed in the bill to "the financial stringency."

Mining Engineering at Illinois University

The Department of Mining Engineering at the University of Illinois, Urbana, Ill., is just completing a new mining laboratory, 42 x 100 ft., divided into two equal sections; one for the treatment of ores and one for coal. Among the machines installed are a Jeffrey coal roll, a Williams pulverizer, an Allis-Chalmers gyratory crusher, and a Colorado Iron Works 12 x 12 roll for ore. The crushed material is elevated in a 15 x 20 continuous Peck carrier equipped to dump automatically along the upper run into any one of a row of steel bins, each holding five tons of coal. Beneath these bins is an Avery automatic traveling scale through which the material is delivered to any one of the screens or the washing or concentrating appliances.

On the coal side are a Holmes Brothers shaking screen and a Webster revolving screen, each fitted to separate four sizes and each about 13 ft. long. On the ore side is a vibrating screen. Beneath each of these screens is a set of bins from which the screened material is taken by wheelbarrows to a dormant scale and then delivered to the lower run of the Peck carrier, which elevates it to the upper tier of bins. Through the automatic traveling scale the coal is delivered to a three-compartment American concentrator jig or to a Stewart jig. A Luhrig jig and a Jeffrey-Robinson cone washer will be added later. The washed coal is delivered into a 1300 gal. settling tank from which it is elevated by a Webster bucket elevator to an overhead bin and is thence carried by the Peck carrier to a bin outside the building from which it is carted to the boiler plant. The coal side of the laboratory has a capacity of 5 tons per hour.

On the ore side the material may also be crushed in a stamp battery. The fine screened ore is mixed with water and delivered by a Traylor centrifugal sand pump to a three-compartment classifier, the products from which go to a 6-ft. Williams & Chalmers vanner, an 11-ft. Traylor concentrating table and a buddle. These three machines deliver to four Callow tanks beneath which are drying tables.

In an adjoining room is a completely equipped chemical laboratory and assay room for carrying on such tests as are required in the concentration of ores and the washing of coal. The equipment also includes an assortment of hand jigs, Munro classifiers, a spiral separator, a small Jeffrey-Robinson tub and a small laboratory concentrating plant made by the General Engineering Company. The machinery is being erected by the Burr Company, Champaign, Ill.

The mining department is also equipping a new blasting and explosives laboratory, a rock drilling and coal cutting laboratory, and is building a new rescue station for giving training with oxygen helmets and other rescue appliances.

The offices, drafting rooms, library, and recitation rooms of the mining department are located in the new engineering building which will be ready for occupancy September 15. In this building there is also a completely equipped laboratory for the study of mine gases and safety lamps. Beginning with the collegiate year, the mining department of the University of Illinois will thus have a very complete equipment for teaching all branches of mining engineering.

The Mechanics Institute, Rochester, N. Y., will this summer inaugurate a factory shop course, commencing July 1. It will be conducted in conjunction with a number of the large factories in that city, whose support and co-operation have been secured, and it will provide for the thorough technical and practical training of the young men who take the course, qualifying them for the acceptance of mechanical positions. Philip G. Haines of Cincinnati, Ohio, has accepted the position of superintendent of the course. His appointment was made by the president of the institute, Carlton B. Gibson.

The La Belle Iron Works, Steubenville, Ohio, has tentative plans for some additions to equipment, and it will probably build one more 50-ton open hearth furnace, four more hot sheet mills and two more jobbing mills.

American Technical Schools

Some Comparisons Made by a Scandinavian Visitor—An Advantage of the Norwegian System

Prof. Alf. Gjessing, of the Technical University, Christiania, Norway, who has been making a tour of the industrial districts of the United States, states that the future of the iron and steel industry of Norway and Sweden is there considered to be very promising, particularly with the further development of water power and the extension of smelting and refining in electric furnaces. American mining and ore reduction machinery of the heavier types, such as steam shovels, crushers, etc., is being successfully used to reduce the initial operating costs, and much more will be required as additional large ore beds are opened. A counter influence likely to make itself felt, however, is through the acquisition of iron ore properties by German interests, such as the Krupps, which will naturally favor competitive machinery manufactured in their own country.

Prof. Gjessing has been impressed with the excellent facilities for technical education afforded by the universities and other technical schools of this country; but, in the case of the former, at least, he feels that the Norwegian system is in one respect superior, viz., the requirement that graduates of the secondary schools preparing to enter a technical high school (university grade) shall spend one year in actual shop or construction work. This, in his judgment, fits them to better grasp the essential elements of subsequent instruction and to regard their lessons from a practical standpoint. The so-called "Cincinnati" system of one week in the shop and the following week in the school, in use also at Fitchburg, Mass., and a few other cities, he does not believe works out as well, although it appeals to him as an improvement over the system generally prevailing in this country.

Dominion Steel Corporation's May Production

The outputs from the various departments of the steel plant of the Dominion Steel Corporation, Sydney, N. S., for the month of May were exceptionally good. The tonnages obtained from the coke ovens, blast furnaces, open hearth furnaces, blooming mill and rail mill compare most favorably with the best records obtained from those departments in past months. The production in the various departments was as follows:

Products.	Tons.
Coke	45,185
Pig iron	28,590
Steel ingots	30,800
Blooms	25,820
Rails	18,120
Rods	2,680

The total shipments for the month were 27,565 tons.

The Busch-Sulzer Bros.-Diesel Engine Company

Construction work on the new manufacturing plant of the Busch-Sulzer Bros.-Diesel Engine Company, St. Louis, Mo., which was started a few weeks ago, is making good progress under the supervision of the Arnold Company of Chicago, which has the contract for engineering the work. The plant is expected to begin with a yearly capacity of about 50,000 hp. of Diesel engines and will employ about 500 men. The factory site was purchased at an expense of $155,000, and the cost of the buildings with their equipment will probably approximate $500,000. The plant will be exclusively devoted to the manufacture of Diesel engines, of which the company controls the manufacturing rights and patents of Dr. Rudolf Diesel, the inventor, and of Sulzer Bros., of Winterthur, Switzerland, and allied interests. Adolphus Busch is president, Max Rotter is chief engineer and Dr. Rudolf Diesel is advisory engineer. The general offices are in the South Side Bank Building, St. Louis.

The Mechanical Equipment Company of Canada, Ltd., 43 St. Francois Xavier street, Montreal, announces that except in special contracts no guarantees of the output of products of the Farrow spike machine which was illustrated in *The Iron Age*, May 16, 1912, are made.

Iron Mining in New Jersey in 1911

Henry B. Kummel, State geologist, has published a bulletin dealing with the mineral industry of New Jersey in 1911. The mineral output of the State last year he values at $35,000,000, "a greater value per square mile of territory than any other State shows excepting Pennsylvania." Concerning iron ore production in 1911 the report says:

"The iron mining industry in 1911 showed a marked decrease, both in production and values, as compared with 1910, but as the average value per ton was $3.22 as against $3.03 for the previous year, the decrease in value was not so great as in quantity. The production was 359,721 gross tons, about 66 per cent. of the previous year, and the value $1,158,271. For 1910 the figures were 521,832 gross tons, valued at $1,582,313. At the beginning of the year the stock on hand at the mines was 17,567 tons, while at its close this had increased to 115,581 tons. A decrease in production of 66 per cent. and the addition to the stock piles of 98,014 tons, or 27 per cent. of the amount mined, indicate the extent of depression in this industry. In fact, the production was less than for any year since 1900, when it was 342,390 tons. Of the ore mined 233,824 tons was produced in Morris County and 125,897 tons in Warren and Passaic Counties.

"Of the Hibernia group of mines only the Wharton mine was a producer, all of the other openings on this property being idle. At Wharton the Hurd mine was operated, but the Irondale and Orchard were shut down The Richard mine [Thomas Iron Company] was actively worked, and its production far exceeded that of any other; indeed, its production was approximately equal to that of its most successful year. Some of the Mount Hope [Empire Steel & Iron Company] openings were worked and at Oxford the Washington and Ahles mines were producers. The Peters mine at Ringwood increased its output, and so did the Hoff mine, near Dover. The Shoemaker mine, near Belvidere, was worked a portion of the year, but was shut down in October, and the High Ledge mine was a small producer for a portion of the year.

"There are in northern New Jersey vast deposits of magnetic iron ores that are too low in iron for use at the present time, but which can be economically concentrated into very rich material. In many cases the fineness of crushing necessary to secure proper concentration has prevented their use except in a very limited degree."

The report describes concentrating machinery which will bring these ores into use and predicts heavy gains in iron workings in New Jersey when such equipment is fully adopted.

Cleveland Superintendents' and Foremen's Club

At the monthly meeting of the Metal Trades Superintendents' and Foremen's Club of Cleveland, June 15, E. T. Runge, manager of the cost department of the Interstate Foundry Company, Cleveland, Ohio, read an interesting paper on "Manufacturing Costs." He devoted his attention to basic principles rather than to technical details. He spoke of the need of having a well-balanced organization and hearty co-operation to operate any system or business successfully. He called scientific management a new term for specialization extended to workmen and operations. He stated that frequent meetings of foremen and departmental heads to discuss and plan the day's work are result-producing and that the thought should be emphasized that manufacturing is simply a matter of specialization, organization, co-operation, simplicity and common sense.

The club is making plans for its annual outing, which will be held at Willoughbeach Park, July 13.

The shipments of the German Steel Works Union in May amounted to 535,726 metric tons of A products, against 468,293 tons in April, 1912, and 532,357 tons in May, 1911. The May shipments were distributed as follows: Semi-finished material, 147,747 tons (130,047 tons in April of this year and 130,177 tons in May, 1911); railroad material, 173,679 tons (151,276 tons in April this year and 200,704 tons in May, 1911), and structural steel, 214,300 tons, compared with 186,970 tons in April of this year and 201,476 tons in May, 1911.

The Iron and Metal Markets

Advances in Finished Steel

Plates, Shapes and Bars Up $1 a Ton

Higher Prices for Steel Billets—Wages Increased at Iron Rolling Mills

The predicted advances of $1 a ton in plates, structural shapes and bars have been announced this week, bringing the first two to a Pittsburgh basis of 1.30c. and bars to 1.25c., Pittsburgh. In the case of the Steel Corporation the new prices became effective Wednesday, June 26. Already several independent steel companies have given notice of similar advances, but some of them name July 1 as the date, giving buyers a few days leeway.

Time will determine the extent to which the new prices can be established. They represent a very considerable increase in the cost of the three forms of finished steel to manufacturing buyers, when compared, for example, with 1.05c. and 1.10c. for steel bars early in the year. But it is to be considered that many consumers of bars are covered to the end of the year at as low as 1.10c., while the agricultural implement makers will receive deliveries over the first half of 1913 at 1.15c., Pittsburgh. In plates and shapes contracts at 1.15c. and 1.20c. will be in effect in a good many cases until late in this year.

The factor of most weight as bearing on the amount of new business in these three important lines in the summer months is the enormous volume of the specifications that have poured in upon the mills this month. These, rather than new buying, have been the outstanding feature in the past three weeks, and it is plain that very little low-priced business that has been on the manufacturers' books on contracts expiring July 1 will be canceled for lack of specifications.

With such a scale of operations as is guaranteed for the next three months to important mills, steel manufacturers have not been concerned thus far about political factors, though there is more disposition to admit that a buying movement in the fall is contingent on the election as well as the crop outcome.

The course of railroad buying will be watched closely, particularly as higher priced material must be reckoned with by car and locomotive companies. Car orders in the second half of June have not been important. An early award is expected of the 15,000 steel underframes for which the B. & O. has been in the market, but deliveries will extend over many months.

The Louisville & Nashville has placed 12,000 tons more open hearth rails with the Tennessee Company and the Peoria & Eastern Illinois 6000 tons of rails with the Illinois Steel Company. The Canadian Northern is in the market for 10,000 tons.

In the plate market the filling up of Eastern mills for a few weeks ahead has improved the situation in districts which have not shown the firmness for a good while reported in Central Western and Chicago districts. The overflow from the latter is no longer attractive to the Eastern mills except at premiums of several dollars a ton.

The advance in steel bars is aided by the higher prices recently obtained for bar iron, which has been firm at 1.30c., Cleveland and Pittsburgh. The Amalgamated scale settlement gives an advance from a $5 to a $5.25 minimum for puddling, with 15c higher for each 5c. per 100-lb. advance beyond 1c. per lb. for bar iron, instead of 25c. higher for each 10c. per 100-lb. advance as heretofore. The new finishing scale is 7½ to 10 per cent. higher than present wages.

Steel billets have advanced to $21.50, Pittsburgh, and in some cases $1 to $2 higher has been paid for prompt delivery. Inquiries for 5000-ton lots for rolling have come up, and Eastern mills are being turned to by Central Western consumers in view of the scarcity there.

Pig iron markets have been little affected by the coke situation so far as prices are concerned. It turns out that considerable furnace coke was bought for the second half before the Connellsville producers had taken their firm stand for $2.50; and where such furnace companies had their own ore they sold freely for the third and fourth quarters. A number of furnaces that have had plans for blowing in next month have yet to buy coke, but refuse to pay $2.50. Meantime the price of prompt coke has been rather firmly held, and no large amount of contract coke is offered at the $2.25 level on which some compromises have been made.

Western pig iron centers are settling into dullness. In the East several good-sized transactions have been put through, including 7000 tons to an air brake company. Pipe foundry buying in eastern Pennsylvania has taken up 15,000 to 20,000 tons, Southern iron going at an $11 Birmingham basis for No. 2. Sales of Southern No. 2 foundry are still reported at $11, Birmingham, though leading Alabama producers have announced a minimum of $11.50. Irregularities have developed in Eastern pig iron markets, showing that advances for which furnaces have been contending are not general.

Our British cablegram tells of a sharp advance in pig iron, amounting in the past week to 50c. on makers' iron as well as warrants.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	June 26, 1912.	June 19, 1912.	May 29, 1912.	June 28, 1911.
Pig Iron, Per Gross Ton:				
Foundry No. 2 standard, Philadelphia	**$15.50**	$15.25	$15.25	$15.00
Foundry No. 2, Valley furnace	13.25	13.25	13.25	13.50
Foundry No. 2, Southern, Cincinnati	14.25	14.25	14.25	13.25
Foundry No. 2, Birmingham, Ala.	11.00	11.00	11.00	10.00
Foundry No. 2, at furnace, Chicago*	14.50	14.50	14.50	15.00
Basic, delivered, eastern Pa.	15.25	15.25	15.25	14.50
Basic, Valley furnace	13.25	13.25	13.00	13.00
Bessemer, Pittsburgh	15.15	15.15	15.15	15.90
Malleable Bessemer, Chicago	14.50	14.50	14.50	15.00
Gray forge, Pittsburgh	13.90	13.90	13.90	13.90
Lake Superior charcoal, Chicago	16.25	16.25	15.75	16.50
Billets, etc., Per Gross Ton:				
Bessemer billets, Pittsburgh	**21.50**	20.50	21.00	21.00
Open Hearth Billets, Pittsburgh	**21.50**	20.50	20.50	21.00
Forging billets, Pittsburgh	28.00	28.00	28.00	26.00
Open hearth billets, Philadelphia	23.40	23.40	23.40	23.40
Wire rods, Pittsburgh	25.00	25.00	25.00	27.00
Old Material, Per Gross Ton:				
Iron rails, Chicago	16.00	16.00	16.00	14.00
Iron rails, Philadelphia	16.50	16.50	16.50	16.50
Car wheels, Chicago	14.00	14.00	14.00	12.50
Car wheels, Philadelphia	14.00	14.00	13.50	13.00
Heavy steel scrap, Pittsburgh	13.50	13.50	13.25	13.00
Heavy steel scrap, Chicago	11.75	11.75	12.00	10.25
Heavy steel scrap, Philadelphia	13.50	13.50	13.50	13.00

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Finished Iron and Steel.	June 26, 1912.	June 19, 1912.	May 29, 1912.	June 28, 1911.
Per Pound to Largest Buyers:	Cents.	Cents.	Cents.	Cents.
Bessemer rails, heavy, at mill..	1.25	1.25	1.25	1.25
Iron bars, Philadelphia.....	1.30	1.30	1.30	1.27½
Iron bars, Pittsburgh.....	1.35	1.25	1.25	1.25
Iron bars, Chicago.....	1.27½	1.27½	1.25	1.20
Steel bars, Pittsburgh.....	1.20	1.20	1.20	1.25
Steel bars, tidewater, New York	1.36	1.36	1.36	1.41
Tank plates, Pittsburgh.....	1.25	1.25	1.25	1.35
Tank plates, tidewater, New York	1.41	1.41	1.41	1.51
Beams, Pittsburgh	1.25	1.25	1.25	1.35
Beams, tidewater, New York...	1.41	1.41	1.41	1.51
Angles, Pittsburgh	1.25	1.25	1.25	1.35
Angles, tidewater, New York...	1.41	1.41	1.41	1.51
Skelp, grooved steel, Pittsburgh	1.20	1.20	1.15	1.25
Skelp, sheared steel, Pittsburgh	1.25	1.25	1.20	1.35
Sheets, Nails and Wire,				
Per Pound to Largest Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	1.90	1.90	1.90	2.00
Wire nails, Pittsburgh.....	1.60	1.60	1.60	1.70
Cut nails, Pittsburgh.....	1.55	1.55	1.55	1.60
Fence wire, ann'led, 0 to 9, P'gh.	1.40	1.40	1.40	1.50
Barb wire, galv., Pittsburgh...	1.90	1.90	1.90	2.00
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt shipment	$2.10	$2.00	$2.10	$1.40
Furnace coke, future delivery..	2.25	2.35	2.35	1.60
Foundry coke, prompt shipment	2.40	2.40	2.50	1.80
Foundry coke, future delivery..	2.60	2.50	2.50	2.10
Metals, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York.....	17.75	17.62½	16.75	12.87½
Electrolytic copper, New York.	17.62½	17.50	16.62½	12.62½
Spelter, St. Louis.....	6.95	6.90	6.75	5.45
Spelter, New York.....	7.10	7.05	6.90	5.65
Lead, St. Louis.....	4.37½	4.37½	4.12½	4.35
Lead, New York.....	4.50	4.50	4.20	4.50
Tin, New York.....	48.15	48.50	46.00	45.00
Antimony, Hallett, New York..	7.75	7.75	7.62½	8.25
Tin plate, 100-lb. box, New York	$3.64	$3.64	$3.64	$3.94

Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb., New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c.; Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier; 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.25c., base, net cash, 30 days. Following are stipulations prescribed by manufacturers, with extras:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Places up to 72 in. wide, inclusive, ordered 10.2 lb. per square ft. are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per square ft. to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot, down to the weight of 3-16 in. take the price of 3-16 in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Extras.	Cents per lb.
Gauges under ¼ in. to and including 3-16 in. on thinnest edge	.10
Gauges under 3-16 in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates) 3 ft. and over in length	.10
Complete circles, 3 ft. in diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

Wire Rods and Wire.—Bessemer, open hearth and chain rods, $25. Fence wire, Nos. 0 to 9, per 100 lb., terms 60 days, or 2 per cent. discount in 10 days, carload lots, to jobbers, annealed, $1.40; galvanized, $1.70. Galvanized barb wire, to jobbers, $1.90; painted, $1.60. Wire nails, to jobbers, $1.60.

The following table gives the price to retail merchants on wire in less than carloads, including the extras Nos. 10 to 16, which are added to the base price:

Fence Wire, per 100 lb.

Nos.	0 to 9.	10.	11.	12 & 12½.	13.	14.	15.	16.
Annealed	$1.55	$1.60	$1.65	$1.70	$1.80	$1.90	$2.00	$2.10
Galvanized	1.85	1.90	1.95	2.00	2.10	2.20	2.60	2.70

Structural Material.—I-beams, 3 to 15 in.; channels, 3 to 15 in., and angles, 3 to 6 in., on one or both legs, ¼ in. and over, 1.25c. Other shapes and sizes are quoted as follows:

	Cents per lb.
I-beams over 15 in	1.30 to 1.35
H-beams over 18 in	1.30 to 1.35
Angles over 6 in	1.30 to 1.35
Angles, 3 in. on one or both legs, less than ¼ in. thick, plus full extras, as per steel bar card Sept. 1, 1909	1.30 to 1.35
Tees, 3 in. and up	1.30 to 1.35
Zees, 3 in. and up	1.25 to 1.30
Angles, channels and tees, under 3 in. plus full extras as per steel bar card Sept. 1, 1909.	1.30 to 1.35
Deck beams and bulb angles	1.55 to 1.60
Hand rail tees	2.10 to 2.25
Checkered, trough and corrugated floor plates	2.25 to 2.50

Extras for Cutting to Length.

	Cents per lb.
Under 3 ft., to 2 ft., inclusive	.25
Under 2 ft., to 1 ft., inclusive	.50
Under 1 ft	1.55

No charge for cutting to lengths 3 ft. and over.

Sheets.—Makers' prices for mill shipments on sheets of U. S. Standard gauge, in carload and larger lots, on which jobbers charge the usual advance for small lots from store, are as follows:

Blue Annealed Sheets.

	Cents per lb.
Nos. 3 to 8	1.25 to 1.30
Nos. 9 and 10	1.35 to 1.40
Nos. 11 and 12	1.40 to 1.45
Nos. 13 and 14	1.45 to 1.50
Nos. 15 and 16	1.55 to 1.60

Box Annealed Sheets, Cold Rolled.

Nos. 10 to 12	1.55 to 1.60	.....
Nos. 13 and 14	1.60 to 1.65	.....
Nos. 15 and 16	1.65 to 1.70	1.75 to 1.80
Nos. 17 to 21	1.70 to 1.75	1.80 to 1.85
Nos. 22, 23 and 24	1.75 to 1.80	1.85 to 1.90
Nos. 25 and 26	1.80 to 1.85	1.90 to 1.95
No. 27	1.85 to 1.90	1.95 to 2.00
No. 28	1.90 to 1.95	2.00 to 2.05
No. 29	1.95 to 2.00	2.05 to 2.10
No. 30	2.05 to 2.10	2.15 to 2.20

Galvanized Sheets of Black Sheet Gauge.

Nos. 10 and 11	1.90 to 2.00
Nos. 12, 13 and 14	2.00 to 2.10
Nos. 15 and 16	2.10 to 2.15
Nos. 17 to 21	2.30 to 2.40
Nos. 22, 23 and 24	2.40 to 2.50
Nos. 25 and 26	2.60 to 2.70
No. 27	2.75 to 2.85
No. 28	2.90 to 3.00
No. 29	3.00 to 3.10
No. 30	3.20 to 3.30

All above rates on sheets are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice, as also are the following:

Corrugated Roofing Sheets by Weight.

Effective April 18, 1912, the rates for painted and formed roofing sheets, per 100 lb., as announced by most of the leading sheet manufacturers, are based on the following extras for painting and forming over prices for corresponding gauges in black and galvanized sheets:

	Gauges, cents per 100 lb.			
Painting.	29	25 to 28	19 to 24	12 to 18
Regular or oiling	...	0.15	0.10	0.05
Graphite, regular	..	0.25	0.15	0.10
Forming.				
2, 2½, 3 and 5 in. corrugated.	0.05	0.05	0.05	0.05
2 V-crimped, without sticks...	0.05	0.05	0.05	...
⅝ to 1¼ in. corrugated	0.10	0.10	0.10	...
3 V-crimped, without sticks..	0.10	0.10	0.10	...
Pressed standard seam, with cleats	...	0.15	0.15	...
Plain roll roofing, with or without cleats	0.15	0.15	0.15	...
Plain brick siding	...	0.20	...	...
3-15 in. crimped	0.20	0.20	0.20	...
Weatherboard siding	...	0.25	0.25	...
Beaded ceiling	...	0.25	0.25	...
Rock face brick and stone siding	...	0.25	...	...
Roll and cap roofing, with caps and cleats	0.25	0.25	...	...
Roofing valley, 12 in. and wider	...	0.25	0.25	...
Ridge roll and flashing (plain or corrugated)	...	0.65	0.65	0.65

Corrugated Roofing Sheets, with 2½-in. Corrugations, per Square.

Some leading manufacturers of roofing material are

still quoting on an area basis and are naming prices as follows:

Gauge.	Painted.	Galvanized.	Gauge.	Painted.	Galvanized.
29.....	....	$2.40	23.....	$2.30	$3.50
28.....	$1.35	2.55	22.....	2.50	3.80
27.....	1.50	2.60	21.....	2.70	4.05
26.....	1.60	2.65	20.....	2.90	4.35
25.....	1.80	3.05	18.....	2.90	5.70
24.....	2.00	3.15	16.....	4.70	6.50

Wrought Pipe.—The following are the jobbers' carload discounts (card weight) on the Pittsburgh basing card on steel pipe, in effect from June 1, 1912; black iron pipe from December 1, 1911; galvanized iron pipe from March 1, 1913, one point greater being allowed on merchant weight:

Butt Weld.

	Steel		Iron	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ in.....	73	53	68	49
⅜ in.	74	64	69	53
½ in.	77	67	72	59
¾ to 1½ in.....	80	72	75	64
2 to 3 in.....	81	74	76	65

Lap Weld.

1¼ and 1½ in.....	..	..	68	61
2 in.	78	71	72	63
2½ to 4 in.....	80	73	74	66
4½ to 6 in.....	79	71	73	65
7 to 12 in.....	78	68	71	61
13 to 15 in.....	55	..	47	..

Plugged and Reamed.

1 to 1½ in., butt weld.....	78	70	73	62
2 to 3 in., butt weld.....	79	72	74	63
2 in., lap weld.....	76	69	70	61
2½ to 4 in., lap weld.....	78	71	72	64

Butt Weld, extra strong, plain ends, card weight.

⅛, ¼, ⅜ in.....	69	59	65	55
½ in.	74	68	70	63
¾ to 1½ in.....	78	72	74	65
2 to 3 in.....	79	73	75	66

Lap Weld, extra strong, plain ends, card weight.

1½ in.	..	..	66	60
2 in.	75	69	71	63
2½ to 4 in.....	77	71	73	66
4½ to 6 in.....	76	70	72	65
7 to 8 in.	70	60	65	55
9 to 12 in.....	65	55	60	50

Butt Weld, double extra strong, plain ends, card weight.

½ in.	64	58	60	52
¾ to 1½ in.....	67	61	63	55
2 to 2½ in.....	69	63	65	57

Lap Weld, double extra strong, plain ends, card weight.

2 in.	65	59	61	52
2½ to 4 in.....	67	61	63	57
4½ to 6 in.....	66	60	62	56
7 to 8 in.....	60	50	55	45

The above discounts are subject to the usuual variation in weight of 5 per cent. Prices for less than carloads are two (2) points lower basing (higher price) than the above discounts on black and three (3) points on galvanized.

Boiler Tubes.—Discounts on lap welded steel and standard charcoal iron boiler tubes to jobbers in carloads are as follows:

Steel.		*Standard Charcoal Iron.*	
1¾ to 2¼ in.....	64	1½ in.	48
2½ in.	66½	1¾ to 2¼ in.....	50
2¾ to 3¼ in.....	71½	2½ in.	55
3½ to 4 in.....	74	2¾ to 3¼ in.....	57½
5 to 6 in.....	66½	3½ to 5 in.....	60
7 to 13 in.....	64		

Locomotive and steamship special grades bring higher prices.

2½ in. and smaller, over 18 ft., 10 per cent. net extra.
2¾ in. and larger, over 22 ft., 10 per cent. net extra.
Less than carloads will be sold at the delivered discounts for carloads, lowered by two points for lengths 22 ft. and under to destinations east of the Mississippi River; lengths over 22 ft. and all shipments going west of the Mississippi River must be sold f.o.b. mill at Pittsburgh basing discount, lowered by two points.

Pittsburgh

PITTSBURGH, PA., June 26, 1912.

Effective to-day, the Carnegie Steel Company has advanced prices on steel bars, plates and shapes $1 a ton, the new prices being 1.25c. for steel bars and 1.30c. for plates and shapes. This action had been generally expected by the trade and it is understood that all the other leading steel companies have taken similar action. The new demand for finished iron and steel this month has been fairly heavy, but specifications against contracts have been pouring in at an enormous rate, partly due to the fact that the mills will take advantage of the limitation clause and will cancel any tonnage unspecified for by June 30. As higher prices on most finished lines will be named from July 1, consumers will be likely to place new orders cautiously. The uncertain political situation will also have its effect, and new buying in July and August is likely to show a falling off as compared with the activity in the early part of the year, when consumers were anxious to cover as far ahead as they could at the low prices that were then ruling. The pig iron market is being dominated by the coke situation, and just now the advantage seems to be with the coke makers. A number of idle blast furnaces would probably go in blast in July on coke at about $2 a ton, but with only a limited amount of coke to be had at $2.25, and most operators holding at $2.50, the furnace operator is up against it, claiming he cannot pay $2.25 for coke and come out even on his iron at present selling prices. The steel market is strong, prompt billets bringing $1 to $2 a ton premiums over regular prices. The market on finished material is also strong, but as stated above the real test of the higher prices now being quoted will come in July and August. The mills are comfortably filled through the third quarter and will likely maintain a strong front. Prices on ferrosilicon are up $2.50 a ton. The scrap market is firm, with some lines slightly higher. The coke situation is getting a good deal of attention, and the deadlock between the coke makers and the furnace operators will likely go on for some time. So far the prospective higher prices for coke after July 1 have not helped pig iron prices, with the exception of basic, which is about 25c. higher. The decision of a number of coke makers to regulate output by shutting down their ovens one day in the week is expected to strengthen their position. The settlement of the puddling and finishing scales between the Western Bar Iron Association and the Amalgamated Association, giving the men a slight advance in wages, is a favorable development of the week.

Pig Iron.—This branch of trade seems to be marking time. While there is a moderate amount of new inquiry it is nearly all for small lots, the only large inquiry reported being that of the Pittsburgh Steel Company for 25,000 tons for third quarter delivery. The Carbon Steel Company closed late last week for about 6000 tons of basic for delivery in the last half, the reported price being $13.25 at Valley furnace. Reports of blast furnaces now idle that will go in blast July 1 are exaggerated. Mattie of the Girard Iron Company at Girard, Ohio, will not start up before August 1 or later, and no time has been set for the starting of the fourth blast furnace of the Jones & Laughlin Steel Company at Aliquippa, Pa. Rebecca furnace of the Kittanning Iron & Steel Company will not go in before August 1, if then. Sharpsville furnace of the Sharpsville Iron Company, a small stack, that can make only about 150 tons a day, may possibly go in some time in July, but no definite time has been set. Grace furnace of the Brier Hill Steel Company at Youngstown and Josephine of Corrigan, McKinney & Co. at Josephine, Pa., may also start in July, but this is not definitely determined. The high prices ruling for coke will keep out of blast a number of furnaces that otherwise would have gone in next month. We note a sale of 1000 tons of Bessemer iron at $14.25 for last half and 2000 tons of malleable Bessemer for third quarter at $13, both Valley furnace. We quote: Bessemer iron, $14.25; basic, $13.25 to $13.50; Northern No. 2 foundry, prompt delivery, $13.25 and for last half, $13.50; malleable Bessemer, $13 to $13.25, and gray forge $13, all at Valley furnace; the freight rate to the Pittsburgh district being 90c. a ton.

Steel Billets and Sheet Bars.—For the six months ending June 29, the billet and rail sales department of the Carnegie Steel Company will have entered orders for rolling for more than 2,000,000 tons of material, consisting of billets, rails and track supplies, the largest business by far in any six months in the history of the company. The steel market as regards supply seems to be tightening up still more. It is reported that both Bessemer and open-hearth billets for prompt shipment have sold in small lots at $23 to $24 at Pittsburgh and Youngstown mill, but these prices represent premiums paid for quick delivery and are above the regular market. Prices for delivery in third quarter may now be quoted as follows: Bessemer and open-hearth billets, $21.50 to $22; Bessemer and open-hearth sheet bars, $22 to $22.50; axle billets, $25 to $26; forging billets, to be used for general forging purposes, $28, all f.o.b. cars, Pittsburgh or Youngstown mill.

Ferroalloys.—There is a fair amount of new inquiry for ferromanganese for delivery over the last half, but it is mostly for small lots as all the leading consumers are covered. The new inquiry for ferromanganese for prompt shipment is quiet and lower prices are being quoted. An advance of $2.50 a ton has been made in

prices of 50 per cent. ferrosilicon, and several sales of carload lots are reported at the new price of $72.50, delivered. We quote 80 per cent. English ferromanganese at $48.50, Baltimore, for delivery over the last half this year and into the first half of 1913, while small lots for prompt shipment are bringing $50 to $52, f.o.b. Baltimore. We quote 50 per cent. ferrosilicon in lots up to 100 tons at $72.50; over 100 tons to 600 tons, $71.50, and over 600 tons, $70.50, Pittsburgh. The lower grades are ruling at about $20 for 10 per cent.; $21 for 11 per cent.; $22 for 12 per cent., f.o.b. cars at furnace, Ashland, Ky., or Jackson, Ohio. On ferrotitanium we quote 8c. per lb. for carload lots; 10c. per lb. in 2000-lb. lots and over, and 12½c. per lb. in lots up to 2000 lb.

Wire Rods.—The expected contracts of consumers for the last half have not yet come out. We continue to quote Bessemer, open hearth and chain rods at $25 to $25.50, Pittsburgh.

Muck Bar.—Very little is obtainable from the open market, nearly all makers holding their entire output for their own use. Under the terms of the new wage scale, puddlers have received an advance of 25c. a ton. The local market continues very firm. We quote best grades made from all pig iron at $29.50 to $30, f.o.b. Pittsburgh.

Skelp.—The new demand for both iron and steel skelp continues active, and mills rolling skelp have their output sold up over the next two or three months. Premiums have been offered in some cases for quick deliveries. A sale of 1500 tons of grooved iron skelp to a local pipe mill is reported at 1.65c., delivered.

Steel Rails.—Standard sections are quite active, but the demand is made up mostly of small lots to meet current needs of railroads. The Ohio works of the Carnegie Steel Company at Youngstown is in operation this week on standard sections. The new demand and specifications against contracts for light rails are brisk and in the past week the Carnegie Company booked over 4000 tons. Its three rail mills at Bessemer are now operating closer to capacity than at any time for some months. We quote splice bars at 1.50c. per lb. and rails as follows: Standard sections, 1.25c. per lb.; 8 and 10-lb. light rails, 1.29½c.; 12 and 14-lb., 1.20c.; 16 and 20-lb., 1.15c.; 25, 30, 35, 40 and 45-lb., 1.10c., in carload lots, f.o.b. Pittsburgh.

Steel Car Wheels.—Car wheels for passenger and freight service are in more active request than for some time, and the Carnegie Steel Company has recently taken some excellent orders. We quote 33-in. by 2½-in. rim rolled steel car wheels for freight service at $14 to $14.50 per wheel and 36-in. rim rolled steel wheels for passenger service at $18.50 to $19 per wheel, f.o.b. Pittsburgh.

Structural Material.—Some fairly large contracts have been placed, while new inquiries are reported as very active. The report that the McClintic-Marshall Construction Company has taken 7000 tons for the East End Savings and Trust Company's building in this city is an error, as the contract was booked last March by the company named and was only for 700 tons. The Riter-Conley Mfg. Company has secured 800 tons for a new building for the Trumbull Steel Company, which will erect a tin plate plant at Warren, Ohio. The Penn Bridge Company, Beaver Falls, has taken 350 tons for a highway bridge for the city of Altoona, Pa. The American Bridge Company has practically closed for over 10,000 tons for steel buildings in Philadelphia. Local work coming up includes 1200 to 1500 tons for the Elizabeth Steele Magee hospital in this city and 2000 to 2500 tons for new buildings for the Carnegie Institute of Technology. The McClintic-Marshall Construction Company has taken 600 tons for new shops for the Algoma Central & Hudson Bay Railroad at Sault Ste Marie, Ontario, and has also recently secured considerable structural steel work for erection in other parts of Canada. We now quote beams and channels up to 15 in. at 1.30c., Pittsburgh.

Plates.—Car orders have been rather light, and no very large inquiries are in the market, despite daily press reports. The Central Railroad of New Jersey has placed 500 freight cars with the Cambria Steel Company, 500 with the American Car & Foundry Company and 500 with the Standard Steel Car Company. The Pennsylvania Railroad will build 875 steel refrigerator cars at its own shops at Altoona, Pa. The Cambria Steel Company has also taken 500 steel cars for the Philadelphia & Reading and the Standard Steel Car Company has taken 15 all steel stock cars for the Pawnee Bill Wild West Show. The Pressed Steel Car Company has taken a contract from the Norfolk & Western for six baggage and express cars, eight baggage and mail cars and ten postal cars. The same road has placed an order with the Harlan & Hollingsworth Corporation, Wilmington, Del., for 35 passenger cars. The American Steel & Wire Company is in the market for 125 ore and 50 service cars, the Youngstown Sheet & Tube Company for 50 gondolas and 8 hoppers, the Indian Creek Railroad for 50 gondolas, 50 box and 50 hopper cars, the Denver & Rio Grande for 700 box cars, 100 stock cars and 50 cabooses, the Litchfield & Madison for 200 steel gondolas, the Chicago, Milwaukee & St. Paul for 700 steel ballast cars. All the plate mills are congested with work and are anywhere from four to 12 weeks back in shipments. The market is very firm. We quote ¼-in. and heavier plates on new orders at 1.30c., f.o.b. Pittsburgh.

Iron and Steel Bars.—Last week an advance of $2 a ton was made on iron bars, putting the price to 1.35c., Pittsburgh, and to-day the price of steel bars was advanced $1 a ton, or to 1.25c. f.o.b. Pittsburgh. The new demand for both iron and steel bars continues very heavy, and specifications against contracts are pouring into the mills at an unprecedented rate. All the steel bar mills are from three to ten weeks back in deliveries. The new demand for hard steel bars for concrete reinforcing purposes is especially heavy. We now quote steel bars on new orders at 1.25c. and common iron bars at 1.35c., f.o.b., Pittsburgh.

Sheets.—Leading makers report that instead of any falling off in new demand, which usually takes place at this season, there has been a noticeable increase, especially for roofing sheets, on which all the mills are now back in deliveries from six to ten weeks. Consumers are specifying heavily against contracts this month, as some expire June 30, and any unspecified portions will be canceled. The average of prices now obtained is showing a slight increase, due to the cleaning up of contracts made some months ago when prices were lower. Several leading makers state that the average prices on sheets will be at least 50c. per ton higher in July than in the month closing. This will be offset to some extent by the higher prices for sheet bars. All the sheet mills continue to operate to practically full capacity but are still handicapped to some extent by shortage in labor supply and in sheet bars, although the supply of steel in the past two weeks has been somewhat better. The tone of the market is very strong. No. 28 black sheets are firm at 1.90c. to 1.95c. and No. 28 galvanized at 2.95c. to 3c.

Tin Plate.—The new demand for tin plate is quiet, as it always is at this season, but jobbers and consumers are sending in heavy specifications against contracts and there is still the serious question as to whether there is going to be enough tin plate to go round. The mills are working up to the limit of capacity, making and shipping more than ever before in their history, but are yet unable to get it out fast enough. Most of them have nothing to sell for third quarter, being absolutely filled up for that period, and also have a good deal of business on the books for fourth quarter. The present demand is only for small lots, but in some cases large consumers who thought they were fully covered have found they will not have enough and are placing additional orders. So far as known, most of the new business taken by the mills is at the new price of $3.50 per base box, but in some cases desirable business has been taken at $3.49.

Hoops and Bands.—Effective to-day, the Carnegie Steel Company has announced an advance of $1 a ton in steel bands, and this price will no doubt be at once adopted by other makers. Most consumers were given a chance to cover their requirements for third and fourth quarters, and a good deal has been placed in the past two weeks for delivery over the last half. The new demand for hoops is fairly active, but there has been no change in prices. We now quote steel bands on new orders at 1.25c., with extras as per the steel bar card, and steel hoops at 1.25c. to 1.30c., two leading makers stating that 1.30c. is their minimum price.

Cotton Ties.—A good part of the tonnage in cotton ties for this year has been closed, and the total orders booked will not be as heavy as last year, due to the shortage in the crop. The price remains at 72c. per bundle f.o.b. Pittsburgh.

Bolts and Rivets.—The new demand for bolts and rivets is fairly active but is not quite as heavy as it was three or four weeks ago, most consumers having placed large orders at that time at the lower prices then ruling. Makers report that specifications against contracts are coming in freely. Some makers of rivets state they are two to three months back in deliveries, and have their product pretty well sold up over the remainder of this year. We quote button head structural rivets at $1.60 and cone head boiler rivets at $1.70 per 100 lb. base in carload lots, f.o.b. Pittsburgh.

Prices on bolts are very strong, and we quote G. P. coach and lag screws 80 and 20 per cent. off, small carriage bolts, cut thread, 80 and 7½ per cent. off; small carriage bolts, rolled threads, 80 and 15 off; large carriage bolts, 75 and 10 off; small machine bolts, rolled threads, 80 and 20 off; small machine nuts, cut threads, 80 and 12½ off; large machine bolts, 75 and 15 off; square hot-pressed nuts, blank and tapped, $6.30 off, and hexagon nuts, $7.10 off. These prices are in lots of 300 lb. or over delivered within a 20c. freight radius of maker's works.

Shafting.—Specifications against contracts are coming in quite freely, while the new demand is referred to as being slightly better. We quote cold rolled shafting at 65 per cent. off in carload and larger lots and 60 per cent. in less than carload lots delivered in base territory.

Spelter.—Prices are slightly higher. We now quote prime grades of Western at 6.90c., East St. Louis, equal to 7.02½c., Pittsburgh.

Railroad Spikes.—Makers state that specifications against contracts continue to come in freely, and several local mills are from three to six weeks back in deliveries. One maker now has over 50,000 kegs on its books, another 30,000 to 40,000 kegs, and all mills are well filled for some months ahead. The demand for small railroad and boat spikes has been very heavy, and they are hard to obtain for prompt delivery, bringing about $3 a ton above the price of standard sizes. We quote railroad spikes 5½ by 9/16 in. at $1.45 to $1.50, and small railroad and boat spikes at $1.60, base. These prices are minimum of the market, which is very strong.

Wire Products.—Makers of wire nails report that the new demand for this season is heavier than usual, and specifications against contracts are coming in at a fairly satisfactory rate. If present intentions are carried out all wire nails on contracts taken at the $1.50 basis that are not specified for prior to June 30 will be promptly canceled. The recent weakness in prices of wire nails has entirely disappeared. The statement made in this report last week that orders for wire nails had been taken 15c. a keg under the regular price was a typographical error, and should have read 5c. per keg. We quote wire nails at $1.60; cut nails, $1.55; galvanized barb wire, $1.90; painted, $1.60; annealed fence wire, $1.40, and galvanized fence wire, $1.70, f.o.b. Pittsburgh, usual terms, freight added to point of delivery.

Merchant Steel.—The new demand is referred to by the mills as being very heavy, the different makers reporting they are anywhere from three to six weeks back in deliveries. One leading company states that its entire product for third quarter is under contract and it is not taking orders for delivery until after October 1. The market is firm. We quote: Iron finished tire, 1½ by ⅜ in. and larger, 1.20c. base, under ⅜ in. 1.35c. base; planished tire, 1.45c.; channel tire, ¾, ⅞ and 1 in., 1.70c.; 1⅛ in. and larger, 1.60c.; toe calk, 1.75c. base; flat sleigh shoe, 1.25c.; concave or convex, 1.60c.; cutters shoes, tapered or bent, 2.20c.; spring steel, 1.80c.; machinery steel, smooth finish, 1.60c., all f.o.b. cars, Pittsburgh.

Merchant Pipe.—Makers report that the new demand for pipe is very active. All the leading mills are from four to six weeks or longer back in shipments. Higher prices on iron pipe are looked for about July 1, as several leading makers have recently been fairly large buyers of muck bar and have been paying high prices for it. No large contracts for line pipe have recently been placed, but the contract secured by the Youngstown Sheet & Tube Company from the Ohio Fuel Supply Company referred to last week was for 15 miles of 6 in. and 15 miles of 12 in., instead of 20 miles of 6 in. as stated. The mills claim that present discounts on iron and steel pipe are being firmly held.

Boiler Tubes.—The new demand is fairly active and some heavy contracts were made recently on boiler tubes for delivery in third quarter. Merchant tubes are also in better demand than for some time and it is stated that regular discounts are being firmly held.

Coke.—The waiting game between the blast furnace operators that have not covered for their supply of coke for the last half and the coke makers is still going on. The situation this week in coke is decidedly strong. An informal meeting of quite a number of coke operators was held in Uniontown, Pa., June 24, at which the situation was thoroughly discussed. It was pointed out that if the coke makers stand together they will be able to obtain better prices and it was decided that if necessary they will shut down their ovens one day in the week to keep down the output and prevent any surplus from accumulating. For the week beginning July 1 the oven operations will probably not exceed four days, if that much. Some of the leading coke operators practically sold up their entire output for the remainder of this year some time ago at prices ranging from $2.15 to as high as $2.50. Most of those who still have coke to sell are inclined to hold it for $2.50, but there is still a limited supply that would be sold at $2.25. The furnacemen are not willing to pay even $2.25, claiming that coke should not be above $2 to $2.10 at oven, based on present prices of pig iron. It is likely that a number of furnace operators that heretofore have made contracts for coke will now pursue the policy of buying from month to month rather than contract at $2.50 or even at $2.25. Prompt coke is firm, and a sale was made yesterday of 100 cars of standard furnace coke for shipment this week at $2.25. Quite a number of inquiries are in the market for large tonnages of furnace coke for last half, but there is nothing doing. It is probable that a limited tonnage of furnace coke for spot shipment could be had at $2.10 to $2.15 at oven, but most sellers are asking $2.25. We quote strictly Connellsville furnace coke for spot shipment at $2.10 to $2.25 and on contracts for last half of the year at $2.25 to $2.50 per net ton at oven. Prices on foundry coke are firm, and we quote standard makes of 72-hr. at $2.60 to $2.75 per net ton at oven for last half, and $2.40 to $2.50 for spot shipment. The output in the Upper and Lower Connellsville regions last week was 391,792 tons, a decrease over the previous week of about 7000 tons.

Iron and Steel Scrap.—The local market continues strong. Four leading consumers in this district have been holding up shipments for a few days, and this has had a tendency to keep prices in check. Heavy steel scrap is very firm at $13.50 delivered, with reports that $13.75 has been done. There is a fairly heavy demand for borings and turnings and also for low phosphorus melting scrap, and prices are ruling firm. Bundled sheet scrap is also in good demand, but reports of sales at $12.25 delivered are not confirmed. We note a sale of 400 tons of bundled sheet scrap at $11.75, 1000 tons of turnings at $10.75, 500 tons of low phosphorus scrap at $16, and 3000 to 4000 tons of heavy steel scrap at $13.50, all per gross ton, delivered to consumers' mills. While prices are strong, consumers seem to be well covered for the time being and are not making active inquiries. Dealers quote as follows, per gross ton:

Heavy steel scrap, Steubenville, Follansbee, Brackenridge, Sharon, Monessen and Pittsburgh delivery	$13.50
No. 1 foundry cast	$13.00 to 13.25
No. 2 foundry cast	11.50 to 11.75
Bundled sheet scrap, f.o.b. consumers' mills, Pittsburgh district	12.00 to 12.25
Resolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	14.00 to 14.25
No. 1 railroad malleable stock	12.50 to 12.75
Grate bars	9.75 to 10.00
Low phosphorus melting stock	16.00
Iron car axles	22.50 to 22.75
Steel car axles	15.75 to 16.00
Locomotive axles	22.00 to 22.50
No. 1 busheling scrap	12.50 to 12.75
No. 2 busheling scrap	8.50 to 8.75
Old car wheels	14.00 to 14.25
*Cast iron borings	9.75 to 10.00
*Machine shop turnings	10.75 to 11.00
†Sheet bar crop ends	14.75 to 15.00
Old iron rails	15.75 to 16.00
No. 1 wrought scrap	13.75 to 14.00
Heavy steel axle turnings	11.00 to 11.25
Stove plate	10.25 to 10.50

*These prices are f.o.b. cars at consumers' mills in the Pittsburgh district.
†Shipping point.

Chicago

CHICAGO, ILL., June 26, 1912.—(*By Telegraph*)

The past week has been somewhat less productive of orders than the preceding weeks of the month. There is, however, no cessation in specifications nor have deliveries improved. The mill situation, which is most acute in this territory, coupled with the much better position of some of the Eastern mills, particularly plate mills, has occasioned a noteworthy tonnage of premium business in this market and $2 a ton over current prices has been freely paid for prompt delivery. The paying of premiums for deliveries has extended even to rails and track supplies. Rail sales reported in the week were light, various small orders aggregating not over 10,000 tons. The Canadian Northern is inquiring for 10,000 tons. Prices which have been at all irregular, as in the case of sheets, are conspicuously firmer. The scrap market is somewhat weaker as a result of melters having filled their requirements for the next 60 or 90 days. Furnace interests in this territory are not inclined to view the coke situation

with any degree of alarm, in part because a large portion of requirements have already been filled and in part for the reason that additional furnace capacity likely to go in blast is very small. The local situation is also relieved by the availability of by-product coke.

Pig Iron.—Sales of pig iron in the past week, the larger tonnages of which were of malleable iron from local furnaces but also included a few lots of Southern iron of some importance, have been largely routine and without particular significance. One inquiry for a considerable tonnage asked for quotations into next year. In the absence of figures being offered, tonnage was purchased for last half only. There is no general buying for any particular delivery and the prospect for continued purchases seems to rest with the filling up of foundry capacity, no small percentage of which is still available for additional business. Prices are firm but without any change from last quotations. The prospect for new capacity in blast in this territory is somewhat problematical and seems to be confined to the blowing in of the second new Iroquois furnace, the Thomas furnace at Milwaukee and the second Federal furnace. We quote local irons, f.o.b. furnace, the average switching charge to Chicago foundries being nearly 50c. per ton. Other quotations are for Chicago delivery on prompt shipments as follows:

Lake Superior charcoal	$16.25 to $16.75
Northern coke foundry, No. 1	15.00
Northern coke foundry, No. 2	14.50
Northern coke foundry, No. 3	14.25
Northern Scotch, No. 1	16.00
Southern coke, No. 1 foundry and No. 1 soft	16.10 to 16.35
Southern coke, No. 2 foundry and No. 2 soft	15.60 to 15.85
Southern coke, No. 3	15.35 to 15.60
Southern coke, No. 4	14.85 to 15.10
Southern gray forge	14.35 to 14.60
Southern mottled	13.85
Malleable Bessemer	14.50
Standard Bessemer	16.75
Basic	14.50
Jackson County and Kentucky silvery, 6 per cent	17.40
Jackson County and Kentucky silvery, 8 per cent	18.40
Jackson County and Kentucky silvery, 10 per cent	19.40

(By Mail)

Rails and Track Supplies.—With the exception of an inquiry for 10,000 tons of rails from the Canadian Northern Railroad, upon which local mills have been unable to offer sufficiently prompt delivery, the last week brought out but little new rail business. Specifications continue without abatement and railroads are becoming increasingly insistent in their requests for shipment. The demand for track fastenings is also heavy enough to tax the capacity of producers, and, for prompt delivery, buyers have found it necessary to place orders outside of their contracts at premium prices. We quote standard railroad spikes at 1.55c. to 1.65c., base; track bolts with square nuts, 1.95c. to 2.05c., base, all in carload lots, Chicago; standard section Bessemer rails, Chicago, 1.25c., base; open hearth, 1.34c.; light rails, 25 to 45 lb., 1.20c. to 1.25c.; 16 to 20 lb., 1.25c. to 1.30c.; 12 lb., 1.30c. to 1.35c.; 8 lb., 1.35c. to 1.40c.; angle bars, 1.50c., Chicago.

Structural Material.—No important tonnages are reported as having been placed for fabrication, although a number of small contracts, totaling about 2200 tons, were awarded. These include 202 tons for signal bridges for the Chicago & Northwestern Railway and 128 tons for the Copper Range Railroad bridge, awarded to the Worden-Allen Company; 240 tons for the American Book Company's building, Chicago, to the Morava Construction Company; 124 tons for the Fourth Presbyterian Church, Chicago; 144 tons for the Rumely building, Chicago; 242 tons for the Littleton Creamery Company, Denver; 593 tons for a hotel at Shreveport, awarded to the Virginia Bridge & Iron Company; 280 tons for an insurance company's building at San Francisco, awarded to the Ralston Iron Works, and 274 tons for an armory at Minneapolis, awarded to the Minneapolis Steel & Machinery Company. The mill situation as regards structural material shows no change and specifications are being received at a rate even greater in some instances than the shipments. We continue to quote for Chicago delivery, mill shipment, 1.43c., and from store 1.70c.

Plates.—Eastern mills whose capacity is not sold up to the extent generally true of both Pittsburgh and local mills are being offered orders for prompt delivery of plates at a premium of $2 a ton. A considerable tonnage of such business has been placed recently. Deliveries on contract from Western mills fail to improve and from six to ten weeks is the best that can be done by the principal makers. We quote for Chicago delivery, mill shipment, 1.43c. and from store, 1.70c.

Bars.—The opportunity for purchasing iron bars in this market for prompt shipment continues to decrease and, while the mill situation is not so crowded as in the case of steel, the local rolling mills are not seeking business and prices are decidedly firm. There is no apparent change in the situation as regards steel bars, and hard steel bars are being correspondingly benefited in the matter of price. We quote as follows: Bar iron, 1.27½c. to 1.30c.; hard steel bars, 1.30c.; soft steel bars, 1.38c., and from store, soft steel bars, 1.60c., Chicago.

Sheets.—The inability of the principal sheet mills to offer satisfactory delivery has resulted in a considerable tonnage being placed elsewhere. This has tended to strengthen some of the weak spots in the market, and irregularities in prices which have existed are noticeably less frequent. We quote, Chicago delivery, as follows: Carload lots, from mill, No. 28 black sheets, 2.08c. to 2.13c.; No. 28 galvanized, 3.13c. to 3.18c.; No. 10 blue annealed, 1.58c. to 1.63c. Prices from store are: No. 10, 1.95c.; No. 12, 2c.; No. 28 black, 2.30c., and No. 28 galvanized, 3.45c.

Rivets and Bolts.—The recent advance of $2 a ton in the price of rivets is coincident with an active demand. Makers of both rivets and bolts, having a fair volume of orders on their books, have not been eager for new business at the prices that have prevailed, as these quotations have been relatively low compared with the price of steel bars. The manufacturers' schedule of discounts for carriage bolts has been revised and we quote, effective May 21, as follows: Carriage bolts up to ⅜ in. x 6 in., rolled thread, 80 and 15; cut thread, 80 and 7½; larger sizes, 75 and 7½; machine bolts up to ⅜ in. x 4 in., rolled thread, 80 and 20; cut thread, 80 and 12½, larger sizes, 75 and 12½; coach screws, 80 and 20; hot pressed nuts, square head, $6.30 off per cwt.; hexagon, $7.10 off per cwt. Structural rivets, ½ in. and larger, 1.78c. base, Chicago, in carload lots; boiler rivets, 0.10c. additional.

Cast Iron Pipe.—At Appleton, Wis., a purchase of 1500 tons of pipe is noted, the award being made to the United States Cast Iron Pipe & Foundry Company. At Akron, Ohio, 2000 tons is up for figures this week. Prices are strong, and some advance seems likely to be asked in the near future. We quote as follows, per net ton, Chicago: Water pipe, 4 in., $27; 6 to 12 in., $25; 16 in. and up, $24.50, with $1 extra for gas pipe.

Old Materials.—With their order books filled for two and three months in advance mills in this territory have purchased sufficient scrap to meet their requirements for that period. As a result buying at present is light and seems likely to remain so for the next few weeks. The market shows the weakness resulting from this condition and the scrap that must be moved is going to melters at reduced prices. This is particularly true of steel and wrought scrap because of the quantities that have been coming in from the railroads recently. There is no reason in the relative values of old and new material for any decline in price, and it is generally anticipated that a resumption of buying will bring about a return of the full strength of the market. Current railroad lists include 4000 tons from the Chicago, Burlington & Quincy, 2500 tons from the Rock Island and a blank list from the Big Four. We quote for delivery at buyer's works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton.

Old iron rails	$16.00 to $16.50
Old steel rails, rerolling	13.25 to 13.75
Old steel rails, less than 3 ft.	12.50 to 13.00
Relaying rails, standard section, subject to inspection	24.00
Old car wheels	14.00 to 14.50
Heavy melting steel scrap	11.75 to 12.00
Frogs, switches and guards, cut apart	11.75 to 12.00
Shoveling steel	11.75 to 12.00
Steel axle turnings	9.50 to 10.00

Per Net Ton.

Iron angles and splice bars	$13.75 to $14.25
Iron arch bars and transoms	15.25 to 15.75
Steel angle bars	11.50 to 12.00
Iron car axles	19.25 to 19.75
Steel car axles	15.75 to 16.25
No. 1 railroad wrought	12.25 to 12.50
No. 2 railroad wrought	11.25 to 11.50
Steel knuckles and couplers	11.25 to 11.50
Steel springs	11.75 to 12.25
Locomotive tires, smooth	12.25 to 12.75
Machine shop turnings	7.25 to 7.75
Cast and mixed borings	6.50 to 7.00
No. 1 busheling	10.25 to 10.50
No. 2 busheling	7.50 to 7.75
No. 1 boilers, cut to sheets and rings	8.50 to 9.00
Boiler punchings	13.00 to 13.50
No. 1 cast scrap	11.50 to 12.00
Stove plate and light cast scrap	10.00 to 10.50
Railroad malleable	11.75 to 12.25
Agricultural malleable	10.50 to 11.00
Pipes and flues	9.00 to 9.25

Wire Products.—The gradually diminishing volume of business in various wire products is normal in view of the approaching midsummer season. The satisfac-

tory condition of trade is evidenced by the pronounced firmness in prices. There is still a fair movement in wire nails, and retail sales of barb wire are somewhat better than had been anticipated. We quote as follows: Plain wire, No. 9 and coarser, base, $1.58; wire nails, $1.78; painted barb wire, $1.78 to $1.83; galvanized, $2.08; polished staples, $1.83; galvanized, $2.13, all Chicago.

Philadelphia

PHILADELPHIA, PA., June 25, 1912.

There appears to be no diminution in the volume of specifications coming to the mills. Top prices are being paid for prompt deliveries on heavy plates. An advance is being seriously considered on billets. Talk of advances of $1 a ton on plates, shapes and bars, effective early next month, continues to be heard. The usual midsummer suspension at some of the plants for stock taking, the national holiday and repairs is expected to further restrict deliveries, although the period of idleness will probably be confined to the minimum. The scarcity of labor is a factor and higher labor costs are confronting the trade. Pig iron producers are firmer in their views as to prices, and the minimum for standard brands of eastern Pennsylvania foundry is now $15.50, delivered here. The principal movement has been in low grade iron, although a fair business in the higher grades is moving. Steel making irons are comparatively quiet. There is still a deadlock in the coke market, consumers and producers awaiting developments. The old material market remains quiet.

Iron Ore.—Some negotiations for both domestic and foreign ores are in progress, but little business has been closed. Importations during the week include 11,212 tons from Sweden, 5105 tons from New Brunswick and 10,450 tons from Cuba.

Billets.—Western consumers are again negotiating with Eastern producers for rolling billets, several inquiries, including one for 5000 tons for early shipment, being reported. While some producers have been accepting recently quoted prices for both forging and rolling steel, advances are being seriously considered. One maker has withdraw from the market and an advance of $1 a ton is expected to be announced any day. Eastern mills continue fully engaged and prompt deliveries are less freely available. For immediate acceptance quotations are still being made at $23.40 to $24.40 for basic open-hearth rolling billets, and $28.40 for ordinary forging billets delivered in this vicinity.

Pig Iron.—While there has been a moderate movement in general foundry iron low grade pipe making irons continue the most active. Negotiations in various forms aggregate, it is believed, upward of 15,000 tons, mostly in moderate quantities. One Delaware River melter, who has not entirely closed against a recent 5000 ton inquiry, is now out with a further inquiry for 6000 tons. Another has purchased upward of 5000 tons and negotiations pending will equal a like amount. Producers are very firm as to prices, and low grade iron of the character suitable for pipe making is quotable at $14.75 to $15, delivered. Some Southern low grade iron was included in the week's sales at $11, Birmingham basis for No. 2, and further business could be done, but sellers now have higher ideas as to prices. While the largest share of the movement in the higher grades of foundry iron are confined to small and moderate lots several good sized purchases for third and some for second half delivery have been made by general founders and machinery builders. The recently prevailing minimum price for standard eastern Pennsylvania No. 2 X foundry, $15.25, delivered, has disappeared, although some less desirable irons may still be available at that figure. For third quarter delivery Standard No. 2 X is now comparatively firm at $15.50, with some few producers holding at $15.75, at which occasional odd lots are sold. For fourth quarter shipment $16 is frequently quoted for Pennsylvania No. 2 X. Virginia foundry has been a shade more active. Moderate sales of low grade iron to cast iron pipe makers are reported. Small sales of the higher grades for third quarter shipment, at $13 furnace, for No. 2 X are noted, while a round lot of No. 2 plain at $12.75, for delivery here, is reported. While there has been little movement in rolling mill forge iron some business is pending. Producers ask $15, delivered, for this grade, but in the absence of sales, $14.75 to $15 is nominally quoted. A sale of several thousand tons of off grade basic iron to an Eastern melter, at the equivalent of between $15.25 and $15.50 for standard iron, is noted. The same purchaser is in the market for a further supply for both third and fourth quarter, but has not met makers' ideas of prices, which are close to $15.50. Small lot sales of standard low phosphorus iron are reported at quoted prices. The position of sellers is strong, in many instances the present capacity being pretty well sold up, with stocks being steadily reduced. The matter of costs in the second half is still a serious problem. The coke situation is an important factor, while labor scarcity, as well as higher labor costs, must also be considered. Under the circumstances producers in this district are making strong efforts to get higher prices. The following range is named for prompt or third quarter delivery in buyers' yards in this district:

Eastern Pennsylvania No. 2 X foundry	$15.50
Eastern Pennsylvania No. 2 plain	15.25
Virginia No. 2 X foundry	$15.80 to $16.00
Virginia No. 2 plain	15.55 to 15.75
Gray forge	14.75 to 15.00
Basic	15.25 to 15.50
Standard low phosphorus	19.75 to 20.00

Ferroalloys.—Moderate sales of 80 per cent. ferromanganese for last half delivery have been made at $48.50, Baltimore, to consumers in this district. Considerable Western business is under negotiation. Owing to better deliveries on contracts, the demand for spot ferromanganese is less active and prices have sagged to about $50, seaboard. Practically no movement in ferrosilicon is reported, but prices continue firm.

Plates.—A steadily increasing volume of business has been coming to Eastern mills, one mill last week booking double its full capacity. They are profiting by the congestion in Western mills. One maker has entered orders for 3500 tons of tank plates, practically half on immediate specifications at the 1.30c., Pittsburgh, basis. An advance of $1 over the minimum quotation, 1.40c., delivered here, is more generally asked and more freely obtained. Consumers are showing more anxiety to contract, but mills, as a rule, refuse such business. A contract for upward of 1000 tons of boat plates from a Delaware River yard was placed with an Eastern mill. Additional business from shipbuilders is also in sight. Some little export business in boat plates has also been entered. The market is strong and prices are very firm at 1.40c. to 1.45c., delivered here, for ordinary plates.

Structural Material.—The several larger propositions under negotiation in this city are still unclosed, although some are expected to develop into contracts at an early date. The Philadelphia & Reading Railway is in the market for several thousand tons for bridge and viaduct work, while the Pennsylvania has several small bridges before the trade. Eastern mills continue to receive good specifications against contracts for plain material, and for current business quote 1.45c., delivered, although on desirable orders 1.40c. can be done. Contracts for fabricated work, both in the way of buildings and bridges, have usually been for small projects.

Sheets.—Mills are receiving a heavier volume of business for delivery prior to the usual midsummer suspension, and makers are operating at full capacity with order books in better shape than for a long time. Some consideration is being given to the matter of advancing prices, although for prompt business orders are still taken at the basis of 2.05c. to 2.10c., delivered here, for Western sheets, although Eastern mills making smooth, loose-rolled sheets easily obtain ¼c. to ½c. per lb. advance.

Bars.—While Eastern bar mills are probably not so well fixed for orders, sufficient current business comes out to enable them to maintain about an even productive rate, and prices are pretty firmly maintained at 1.30c. to 1.35c., delivered here, with some mills holding above the minimum quotation. Some fair business has been offered for steel bars for second half delivery, but makers are in no haste to contract at the prevailing rate of 1.35c., delivered here.

Coke.—The deadlock as to furnace coke for second half delivery continues. Consumers still refuse to pay prices asked for contract coke, which range from $2.25 to $2.50 at oven, and confine purchases to prompt lots, which have been somewhat more freely available at $1.90 to $2.05. Consumers are willing to pay $2 for contract coke, and it now appears to be a question of which will hold out the longest. A very fair volume of business in foundry coke is moving at prices around $2.40 to $2.50 at oven. The following range of price, per net ton, is named for delivery in buyers' yards in this district, inside prices representing quotations for prompt shipment:

Connellsville furnace coke	$4.10 to $4.70
Connellsville foundry coke	4.55 to 4.70
Mountain furnace coke	3.70 to 4.30
Mountain foundry coke	4.15 to 4.30

Old Material.—The market is generally quiet. Small

sales of various grades come out at about quoted prices, but neither offerings nor bids are very active. Mills continue to purchase odd lots of heavy melting steel scrap at $13.50, delivered. In instances sellers have been requested to withhold shipments, but this is not unusual at this season, just prior to the usual mid-summer stock taking. The following range about represents the market for prompt deliveries in buyers' yards, eastern Pennsylvania and nearby points, taking a freight rate varying from 35c. to $1.35 per gross ton:

No. 1 heavy melting steel scrap and crops	$13.50 to $14.00
Old steel rails, rerolling (nominal)	14.75 to 15.25
Low phosphorus heavy melting steel scrap	16.25 to 16.75
Old steel axles	17.50 to 18.00
Old iron axles	23.50 to 24.00
Old iron rails (nominal)	16.50 to 17.00
Old car wheels	14.00 to 14.50
No. 1 railroad wrought	15.50 to 16.00
Wrought iron pipe	12.50 to 13.00
No. 1 forge fire	12.00 to 12.50
No. 2 light iron (nominal)	7.00 to 7.50
Wrought turnings	10.50 to 11.00
Cast borings	9.50 to 9.75
Machinery cast	13.75 to 14.25
Railroad malleable (nominal)	12.00 to 12.50
Grate bars, railroad	10.50 to 11.00
Stove plate	10.50 to 11.00

Cleveland

CLEVELAND, OHIO, June 25, 1912.

Iron Ore.—Shipments continue very heavy and indications are that the June movement will break the record for a month. Ore carriers are ahead of their schedule somewhat. About all the ore is moving in contract boats. Next month a heavier movement and a demand for some wild tonnage is expected. At present nearly all the boats are busy. The only buying is in very small lots. We quote prices at Lake Erie docks as follows: Old Range Bessemer, $3.75; Mesaba Bessemer, $3.50; Old Range non-Bessemer, $3.05, and Mesaba non-Bessemer, $2.85.

Pig Iron.—Consumers of foundry iron in this territory appear to be well covered for their last half requirements and sales are light. The inquiry from Mansfield, Ohio, for 500 tons of each No. 2 and No. 3 for the last half noted last week aroused considerable interest and was a good test of the market for the reason that Cleveland, Valley, Columbus and Toledo furnaces reach Mansfield with the same freight rate. The minimum quotation for No. 2 was $13.25. Several quotations were made at that price, but it is reported that the business was finally placed with a Cleveland interest at a slight concession. For shipment west of Cleveland territory a fair volume of business is coming out in foundry and malleable grades. Generally the market is very firm and in some cases efforts are being made to get a slight advance in prices. For Cleveland delivery the minimum quotation for No. 2 has been advanced 25c. a ton to $13.75, delivered. For outside shipment local furnaces quote No. 2 at $13.25. There is little inquiry for Southern grades. Many of the consumers in this territory overbought for their first half requirements on a rising market and will not need additional tonnage until near the end of the third quarter. Southern iron is firm at $11, Birmingham. For prompt shipment and for the last half we quote, delivered Cleveland, as follows:

Bessemer	$15.15
Basic	13.75
Northern No. 2 foundry	13.75
Southern No. 2 foundry	15.35
Gray forge	13.25
Jackson silvery, 8 per cent. silicon	$17.30 to 17.55

Coke.—Producers are still holding firmly to $2.50 per net ton at oven for the better grades of furnace coke but consumers appear just as determined as ever not to contract on that basis. Some furnace interests say they will take their chance of buying spot coke from month to month rather than to pay the prices asked. One local interest that needs 1000 tons a month additional bought that amount of spot coke Monday at $2.25, the price asked for the best grades. Some of the operators declare that the price of spot furnace coke will be advanced to $2.50 within a few days. There is a moderate volume of business in foundry coke contracts. We quote standard Connellsville 72-hour foundry coke at $2.50 to $2.75 per net ton, at oven.

Finished Iron and Steel.—There is a good volume of inquiry for third quarter and last half contracts for plates and structural material, but some of the mills are unable to take on additional tonnage for the remainder of the year. Considerable current business in plates and shapes is also coming out for specific work. The demand from fabricators and tank shops is heavy. Some of the mills report the new demand for steel bars not active owing to the fact that consumers are nearly all under contract. Specifications for all kinds of materials are heavy, buyers generally specifying for the full amount of contracts that expire July 1. Some business in plates and shapes for prompt shipment is being done in this market by Eastern mills, the buyers paying a premium in additional freight amounting to about $2 a ton. Deliveries generally are getting worse and consumers are crowding mills for shipment. Inability to secure shipments of low priced tonnage is resulting in the placing of current orders with other mills at present prices with the hope of getting better deliveries. The sheet market is not as firm as other lines. Some mills are taking current orders at 1.85c., Pittsburgh, for No. 28 black and 2.85c. for No. 28 galvanized. The minimum price for last half contracts, however, is 1.90c. and 2.90c. The bar iron market is very firm and the demand continues good. The advance in price to 1.30c., Cleveland, previously noted, is being maintained.

Old Material.—The market is fairly firm, but is not as active as in the few previous weeks. It seems to be the opinion of consumers that prices will go no higher and mills are not disposed to buy much for extended future delivery. Generally they are well supplied for early requirements. Plenty of scrap is being offered, but some consumers are holding back on deliveries because of a scarcity of labor. Dealers' prices, f.o.b. Cleveland, which are unchanged, are as follows:

Per Gross Ton.

Old steel rails, rerolling	$12.75 to $13.00
Old iron rails	14.00 to 14.50
Steel car axles	17.50 to 18.00
Heavy melting steel	12.50 to 12.75
Old car wheels	13.00 to 13.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	10.50 to 11.00
Railroad malleable	12.75 to 13.00
Light bundled sheet scrap	9.50 to 10.00

Per Net Ton.

Iron car axles	$18.50 to $19.00
Cast borings	7.25 to 7.50
Iron and steel turnings and drillings	7.50 to 7.75
Steel axle turnings	8.50 to 8.75
No. 1 busheling	10.75 to 11.00
No. 1 railroad wrought	12.00 to 12.25
No. 1 cast	11.25 to 11.75
Stove plate	9.00 to 9.50
Bundled tin scrap	11.00 to 11.50

Cincinnati

CINCINNATI, OHIO, June 26, 1912.—(*By Telegraph.*)

Pig Iron.—Stagnant conditions prevail in this market. There are no inquiries of any size and business booked the past week is reported lighter than for any similar period this present year. This temporary hesitancy on the part of buyers is alarming no one; in fact, both the producer and the consumer feel more optimistic as to the future. The trade in general seems to be waiting for the political atmosphere to clear up. Shipments on contracts are moving at a satisfactory rate and a steady reduction in stocks, both in the South and in the Hanging Rock district, is considered encouraging. Prices in both districts are firm, though it must be admitted that there is not enough business offering to fairly test the market. The 500 tons of foundry iron wanted in central Ohio, reported last week, as well as the 400 tons of malleable in the same territory, remains unclosed and there is a new Ohio inquiry for 500 tons of Southern foundry, all for last half shipment. The deadlock on prices between the Northern furnace operators and coke producers is causing some concern, and it is quite probable that a number of furnaces will only take on monthly supplies of coke until differences are settled. Northern No. 2 foundry is firm at $13.50, Ironton, for either prompt or last half shipment. One large Hanging Rock producer is unable to fill orders for either No. 2 or No. 3 foundry and has withdrawn from the market on these grades. Some Southern No. 2 foundry is yet available at $11, Birmingham basis, but $11.25 to $11.50 is adhered to by the majority of furnace operators in that district. Based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 foundry and 1 soft	$14.75 to $15.00
Southern coke, No. 2 foundry and 2 soft	14.25 to 14.50
Southern coke, No. 3 foundry	14.00
Southern coke, No. 4 foundry	13.75
Southern gray forge	13.75
Ohio silvery, 8 per cent. silicon	17.20 to 17.70
Lake Superior coke No. 1	14.95
Lake Superior coke No. 2	14.70
Lake Superior coke No. 3	14.45
Basic, Northern	14.45
Standard Southern car wheel	25.25 to 25.50
Lake Superior charcoal	16.75 to 17.25

(By Mail)

Coke.—The furnace coke situation, especially Connellsville, is in a very mixed up condition. Local agencies report the leading producers and consumers as being far apart in their respective ideas as to prices, and as a consequence business is almost at a standstill in 48-hr. brands. Standard Connellsville furnace brands, for spot shipment, are quoted all the way from $2 to $2.25 per net ton at oven, and contract figures range from $2.35 to $2.50. It is understood that a number of furnaces in different districts contemplate purchasing from month to month. In the Wise County district furnace coke can be obtained as low as $1.90 per net ton at oven, for prompt movement, with contract figures around $2.10 to $2.25. The same quotations prevail in the Pocahontas field, but a leading domestic consumer in central Ohio was able to purchase 10,000 tons of 48-hr. Pocahontas coke at $2 for last half shipment. Foundry coke is only in fair demand and is quoted around $2.50 for prompt shipment, with an advance of 10c. to 15c. on contract business.

Finished Material.—Heavy structural material continues in the lead, so far as this territory is concerned, although there is a good demand for reinforcing concrete bars. Wire nails continue to drag, and it looks as if the building season will get by without anything like the usual quantity booked by the mills. Steel bars and structural materials are very firm.

Old Material.—The demand for all kinds of scrap is very light, with the possible exception of the call from the nearby foundries, who are melting a little more than for the past few months. Prices are not firm, and unless conditions change a reduction may be expected some time in the near future. The minimum figures given below represent what buyers are willing to pay for delivery in their yards in southern Ohio and Cincinnati, and the maximum quotations are dealers' prices f.o.b. at yards:

Per Gross Ton.

Bundled sheet scrap	$8.75 to $9.25
Old iron rails	12.75 to 13.25
Relaying rails, 50 lb. and up	20.00 to 21.00
Rerolling steel rails	11.00 to 11.50
Melting steel rails	10.00 to 10.50
Heavy melting steel scrap	10.00 to 10.50
Old car wheels	12.00 to 12.75

Per Net Ton.

No. 1 railroad wrought	$10.50 to $11.00
Cast borings	6.25 to 6.75
Steel turnings	6.25 to 6.75
No. 1 cast scrap	10.75 to 11.25
Burnt scrap	7.50 to 8.00
Old iron axles	16.00 to 16.50
Locomotive tires (smooth inside)	11.75 to 12.25
Pipes and flues	7.00 to 7.50
Malleable scrap	8.50 to 9.00
Railroad tank and sheet scrap	6.50 to 7.00

Birmingham

BIRMINGHAM, ALA., June 24, 1912.

Pig Iron.—No iron maker in the Birmingham district is quoting under a basis of $11.50. Careful investigation and the sounding of all manufacturers have shown that they are now agreed on $11.50 and inclined to expect a still higher level in the month of July. One reports the sale of 2500 tons in various lots for delivery on spot, third quarter and fourth quarter basis at $11.50 all round and in Southern territory. One small sale of Nos. 2 and 3 brought $11.50 for both. The lower grades are scarce and bring the 25c. differential straight along. The only interest with appreciable stocks on hand is selling its make and reducing the accumulation. There are no stocks on yards of two of the largest makers and two are not now quoting for fourth quarter delivery. Even the most conservative furnacemen, when sounded this week, declared that it was an $11.50 market and that it looked as if $12 was coming. Prices are stronger than they have been this year, stocks are smaller and there has been no appreciable increase in output, while the melt is on the increase. Several sales of charcoal iron have been made at the regular prices. Additional orders for rails have been received at the Ensley mill. Steady operation in steel plants is predicated for the summer. While competitive points may here and there secure iron under these prices, the standard quotations f. o. b. Birmingham district furnaces may be regarded as follows:

No. 1 foundry and No. 1 soft	$11.50 to $11.75
No. 2 foundry and No. 2 soft	11.25 to 11.50
No. 3 foundry	11.00 to 11.25
No. 4 foundry	10.75 to 11.00
Gray forge	10.50 to 10.75
Basic	10.75 to 11.25
Charcoal iron	22.50 to 23.00

Water Pipe.—Shipments from local plants are about at the rate of manufacture, with order books well filled for some time to come. Plants are running on full time and yards are empty. Los Angeles is among the points placing new orders. Prices are still as follows: 4 to 6 in., $23.50; 8 to 12 in., $22.50; over 12 in., average $21.50, with $1 extra for gas pipe.

Coal and Coke.—There is no change in the coal situation. The demand is very good for this time of the year and factories are sounding for delivery against fall operations. Coke is steady at $3.25 to $3.75 per net ton at oven, with no special feature.

Old Material.—There has been a lull in the old material line, but dealers are not inclined to report recessions in prices owing to comparatively small stocks which they think it safe to hold until their terms are granted. Dealers' prices, f. o. b. Birmingham, are as follows, per gross ton:

Wrought iron car axles	$16.00 to $17.00
Old steel axles	14.50 to 15.50
Old iron rails	14.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	11.00
No. 1 country wrought	9.50 to 10.00
No. 2 country wrought	9.00 to 9.50
No. 1 machinery	8.50 to 9.00
No. 1 steel	9.50 to 10.00
Tram car wheels	10.00 to 10.50
Standard car wheels	11.50 to 12.00
Light cast and stove plate	8.00 to 8.50

Buffalo

BUFFALO, N. Y., June 25, 1912.

Pig Iron.—The volume of buying has lessened considerably as compared with the last few weeks. Some falling off is also observable in the inquiry. The week's sales reached an aggregate of probably 10,000 tons in all grades and included a purchase by the Lackawanna Railroad of 750 tons of foundry grades; 1000 tons of No. 2 X for New England delivery taken at $14 at furnace; also 2500 to 3000 tons in smaller lots for New England points. Unplaced tonnage pending is not large, aside from the two inquiries mentioned last week and not yet reported placed, aggregating 12,000 tons. Furnaces are not at all active in seeking orders, one reason being the element of uncertainty as to cost of production caused by the coke situation. Producers are maintaining a firm attitude as regards prices, although the easing off in buying may tend to check any further upward movement for the present. We quote as follows for current and last half delivery, f. o. b. Buffalo:

No. 1 X foundry	$14.25 to $14.75
No. 2 X foundry	14.00 to 14.25
No. 2 plain	14.00
No. 3 foundry	13.75 to 14.00
Gray forge	13.50 to 13.75
Malleable	14.25 to 14.50
Basic	14.25 to 14.50
Charcoal according to brand and analysis	15.75 to 17.50

Finished Iron and Steel.—The market, though not particularly active, shows a good undertone of strength and confidence. Specifications on contracts continue to be received freely in all lines. New business is good for the season and quite a number of contracts for third and fourth quarter are being closed. Plain bar material can be furnished by most mills in from three to four weeks, though some specifications require longer time. In twisted bars five or six weeks is about the minimum for delivery, and on plates and shapes the majority of mills can give delivery in six to eight weeks, although for some specifications, especially in shapes, 90 days is required. Prices are firm, the trade in general accepting present schedules without objection in placing contracts, the evident feeling being that there may be an advance announced by producers within a few weeks. Business in spikes is quite active and deliveries are becoming extended to three or four weeks, with $1.50 base now quoted by sellers. Merchant pipe is in good demand and another advance in price is looked for about July 1. In sheets and tin plates business is active and large specifications are coming in on previous contracts. Prices on wire are firm at $1.60 nail base, Pittsburgh, to jobbers. A liberal amount of business is being done in fabricated structural material, although no inquiries of special size or importance are noted for the week. Bids will soon be received for fabrication and erection of steel for an additional four-story factory building for the Crosby Company, Buffalo, from plans of Robert J. Reidpath, architect, requiring 1150 tons. Bids are being taken this week on revised plans for an operating building to be added to the Sisters of Mercy Hospital, Buffalo, taking 100 tons. Figures are also being taken on steel for the Acme Cold Storage Company's building, Albion, N. Y.; for the central school building,

Sonyea, N. Y., and for an amusement park pavilion, Batavia, N. Y., each requiring a small tonnage; also for subway work for the New York Central Railroad Company at Utica, 150 tons. The Lackawanna Bridge Company, Buffalo, has been awarded contract for four buildings to be added to the Pierce plant of the American Radiator Company at Buffalo, taking a large tonnage of steel, and for a factory for the National Brake & Electric Company at Milwaukee, taking 1000 tons.

Old Material.—A fair tonnage of scrap has been marketed during the week, principally to outside districts, although local buying has been a little freer than in the preceding week. Some dealers are inclined to hold more stiffly for better prices, believing that a slightly higher range will soon be obtainable, but there is no quotable change in any commodity.

We quote as follows, per gross ton, f. o. b. Buffalo:

Heavy melting steel	$12.75 to $13.25
Low phosphorus steel	15.75 to 16.00
No. 1 railroad wrought	14.00 to 14.75
No. 1 railroad and machinery cast scrap	13.50 to 14.00
Old steel axles	16.50 to 17.25
Old iron axles	21.00 to 21.50
Old car wheels	13.00 to 13.50
Railroad malleable	11.50 to 12.25
Boiler plate, sheared	13.75 to 14.25
Locomotive grate bars	11.00 to 11.25
Wrought pipe	9.50 to 10.00
Tank iron	10.00 to 10.25
Wrought iron and soft steel turnings	8.25 to 8.50
Clean cast borings	7.25 to 7.50

Boston

BOSTON, MASS., June 25, 1912.

Old Material.—The market has not changed in the week. Sales continue fairly active, but the effect of the summer season is beginning to be felt. The quotations given below are of prices offered by the large dealers to the producers and to the smaller dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points, taking Boston rates from eastern Pennsylvania points. In comparison with Philadelphia prices the differential for freight of $2.30 a ton is included. Mill prices are approximately 50c. a ton more than dealers' prices.

Heavy melting steel	$10.25 to $10.75
Low phosphorus steel	11.45 to 11.95
Old steel axles	14.00 to 14.50
Old iron axles	17.00 to 18.00
Mixed shafting	13.00 to 13.50
No. 1 wrought and soft steel	10.00 to 10.50
Skeleton (bundled)	8.25 to 8.75
Wrought iron pipe	9.25 to 9.75
Cotton ties	7.75 to 8.25
No. 2 light	4.50 to 5.00
Wrought turnings	7.25 to 7.75
Cast borings	6.25 to 6.75
Machinery, cast	12.50 to 13.00
Malleable	8.75 to 9.25
Grate bars	6.00 to 6.50
Stove plate	8.00 to 8.50
Cast iron car wheels	11.75 to 12.00

St. Louis

ST. LOUIS, MO., June 24, 1912.

Pig Iron.—Including one request for prices on 500 tons of No. 2 Southern for last half delivery the inquiry for pig iron in the St. Louis territory totals about 2000 tons. Most of the inquiries are for 100 and 200-ton lots. Prices are firm at $11.25 to $11.50, Birmingham basis, for No. 2. All $11 iron has apparently disappeared from the market, one inquiry for No. 2 at that figure having been declined by a local sales agent last week. Small lots, totaling about 1000 tons, were disposed of the latter part of last week. Northern iron is quoted at $13.50 to $14, Ironton, but inquiries are scarce.

Coke.—Prices for coke have not changed and business is dull.

Finished Material.—Steel bars are in good demand at 1.20c., Pittsburgh, and specifications are coming in in good shape. Structural material and steel plates are firm and in good demand at 1.25c., Pittsburgh. Shipments on spikes are still behind and the demand is excellent.

Old Material.—Quotations on scrap are unchanged, but business has fallen off to the very minimum. We quote dealers' prices, f.o.b. St. Louis, as follows:

Per Gross Ton.

Old iron rails	$14.00 to $14.50
Old steel rails, rerolling	12.00 to 12.50
Old steel rails, less than 3 ft.	12.00 to 12.50
Relaying rails, standard section, subject to inspection	22.00 to 22.50
Old car wheels	13.50 to 14.00
Heavy melting steel scrap	12.00 to 12.50
Frogs, switches and guards cut apart	12.00 to 12.50

Per Net Ton.

Iron fish plates	$13.00 to $13.50
Iron car axles	18.00 to 18.50
Steel car axles	16.00 to 16.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	11.75 to 12.25
Railway springs	10.50 to 11.00
Locomotive tires, smooth	12.50 to 13.00
No. 1 dealers' forge	8.50 to 9.00
Mixed borings	6.75 to 7.25
No. 1 busheling	9.50 to 10.00
No. 1 boilers, cut to sheets and rings	8.00 to 8.50
No. 1 cast scrap	11.00 to 11.50
Stove plate and light cast scrap	8.50 to 9.00
Railroad malleable	10.00 to 10.50
Agricultural malleable	8.50 to 9.00
Pipes and flues	8.00 to 8.50
Railroad sheet and tank scrap	8.00 to 8.50
Railroad grate bars	9.00 to 9.50
Machine shop turnings	7.50 to 8.00

The German Iron Market

Favorable Reports Continue

BERLIN, June 13, 1912.

Operations are proceeding on an unusually large scale in all sections of the trade, and the firm tendency of past months has been fully maintained. A growing scarcity of pig iron and steel material is mentioned. Dealers' organizations continue to advance the price of bars and some other staple goods. It appears, however, that a feeling of uncertainty is arising among them as to the future of the bar trade, and they are holding orders back, believing that they will get better prices later on, in view of the increasing production. There are rumors still afloat that a few manufacturers are selling bars at 1 to 2 marks below published prices, but this appears improbable in face of the fact that a number of mills cannot make delivery on new orders under 16 to 18 weeks. It is a characteristic fact, too, that the reason assigned why one of the dealers' associations voted not to raise the price of bars by 5 marks, as other organizations were doing, was that it hoped later to be able to make an advance of 10 marks by postponing action now. The foreign demand for bars is so heavy that it cannot be met, and export prices have risen nearly to the home level, or 120 to 122 marks a ton (this price is f.o.b. seaport for export), for basic steel. Many works, however, are demanding 122.50 to 125 marks from the home trade. The demand for iron bars is also very active, and the mills are about sold up to their capacity for the next quarter.

The ore market maintains a firm tendency. Home mines are working at their full capacity, and calls for delivery of ores are regular and even brisk. The experiment begun about the beginning of the year of shipping ores from the Siegerland district to the Upper Silesian furnaces has turned out so satisfactorily that the state railroads have made contracts with the furnace companies to ship them 150,000 tons of Siegen ores yearly during the next three years. Foreign ores are in good demand at firm prices. There has been some supplementary buying of Swedish ores, and the prices paid on such extra orders were somewhat higher. The market for Spanish and Mediterranean ores has been disturbed by higher freight rates in the Mediterranean. Some further cargoes of Spanish ores destined for England have been diverted to Germany by reason of labor troubles there, and have found a ready market at 19 to 20 marks a ton for 50 per cent.

Pig Iron Trade Is Heavy

In pig iron there is an active foreign demand at higher prices. Belgian interests are again in the German market with offers to buy 50,000 tons of Luxemburg basic, but the price offered was not satisfactory to the Syndicate, and no transaction occurred. The Syndicate saw no occasion for making any concession in view of the excellent state of business in the home trade. The Syndicate furnaces produced 96 per cent. of their quotas last month, as compared with 86 per cent. in April.

The production of pig in May again made a record. The total was 1,463,610 metric tons, comparing with 1,427,559 tons in April, and 1,312,255 tons in May, 1911. A further increase of production is in prospect.

The Hoesch Company of Dortmund will soon begin the erection of two furnaces. The sixth furnace of the Gelsenkirchen Company at its new Esch plant will be blown in about July 1, the other five having been put into operation since March 1.

Rolled Products Active

Foreign orders for heavy steel rails continue to be booked in good amounts and at rising prices. For

lighter rails and those for mines the prices are also higher under a good demand. The amount of work in grooved rails has undergone an increase. The calls for structural material on order are very heavy. Buying has been proceeding at a satisfactory rate since business for the next quarter was opened recently at an increased price. The export demand, especially from Scandinavian countries, is very good. Construction shops are unusually busy and are calling for heavy supplies of structural shapes.

Business has become more active in cold-rolled band-iron, and manufacturers are complaining that they cannot get their material delivered on time. It is believed that prices will be raised this month. In ordinary bands business is unusually good, many of the makers being supplied with work for the rest of the year. The foreign trade is taking larger amounts at higher prices; and it is believed that the home price will also be raised. Similar conditions prevail in the market for steel skelp. The steel tube makers have heavy orders on their books, including much business for the export markets; and their prices have latterly been rising.

The sheet and plate trade remains exceedingly active. Manufacturers of heavy plates cannot accommodate new orders for many months ahead; and shipbuilding concerns are compelled to make their contracts for vessels accordingly. There is also a good and increasing demand for boiler-plates, and at firmer prices. Similar conditions prevail in plates of medium thickness, and large foreign orders have been taken for thin grades. Wire-rods have been raised to correspond to the recently advanced price of semi-finished material, and the mills are very busy—partly on export orders.

The western hardware trade is very busy in all its branches. Prices have recently been raised for most products by about 5 per cent., particularly in those covered by trade combinations. News from the Solingen cutlery trade is quite favorable. The Remscheid district reports active work by the various establishments. Makers of locks and other builders' hardware have work ahead for four or five months. Manufacturers of rivets and screws have more work than ever before.

A meeting of the various associations of dealers in beams will be held to-morrow for the purpose of prolonging these organizations.

Belgium again sends in news of rising prices. Steel rails have been raised 5 francs, and iron bars and band-iron by the same amount. The advances are apparently for the home trade.

Sharp Advance in British Pig Iron

Warrants and Makers' Iron Up 50 Cents in a Week

(By Cable)

MIDDLESBROUGH, ENGLAND, June 26, 1912.

A strong upward movement in pig iron has been under way in the past week. While probably of speculative origin, it has stimulated confidence and a general renewal of buying is probable. Stocks in Connal's stores are 313,693 tons, against 328,430 tons last week.

There is more inquiry for semi-finished steel, for October-March delivery. The German Verband is not favoring higher prices. Sales of open hearth and Bessemer billets and sheet bars have been made recently by American producers. We quote as follows:

Cleveland pig iron warrants (closing Tuesday), 56s. 1d., up 2s. from one week ago.

No. 3 Cleveland pig iron, maker's price, f.o.b. Middlesbrough, 56s. 6d, an advance of 2s. in the week.

Steel sheet bars (Welsh) delivered at works in Swansea Valley, £5 17s. 6d.

German 2-in billets, f.o.b. Antwerp, 100s.

German basic steel bars, f.o.b. Antwerp, £5 17s.

Steel bars, export, f.o.b. Clyde, £7 15s.

Steel joists, 15-in. export, f.o.b. Hull or Grimsby, £6 17s. 6d.

Steel ship plates, Scotch, delivered local yard, £7 17s. 6d.

Steel black sheets, No. 28, export, f.o.b. Liverpool, £9 2s. 6d.

Steel rails, export, f.o.b. works port, £6 7s. 6d. to £6 10s.

Tinplates, cokes, 14 x 20, 112 sheets, 108 lb., f.o.b. Wales, 14s. 7½d., October-December.

New York

NEW YORK, June 26, 1912.

Pig Iron.—Considering that the real buying movement in pig iron in the East is now some weeks past, there is a fair amount of inquiry and of buying. However, a considerable part of the tonnage covered by inquiries mentioned last week is still unplaced, including 5000 tons asked for by a valve company in New England and 2500 tons for a Hudson valley manufacturer of stoves, gas ranges and soil pipes. The last-named company has recently closed for 2500 to 3000 tons of Southern iron, a good part of it being sold on an $11 basis, Birmingham, for No. 2 iron. The air brake business pending a week ago has been placed, the total being around 7000 tons of foundry and off malleable grades. Prices were on a basis below $13.75 Buffalo for No. 2 X for a part of this order. An inquiry for 2000 tons of 1.5 per cent. to 2 per cent. silicon iron has come up at Newark, some of the quotations made being close to $15 delivered. The purchases of a New Jersey sewing machine interest for plants in New Jersey and Indiana, as noted two weeks ago, amounted to about 10,000 tons, while for a Canadian and another American plant 3000 to 4000 tons has been closed within a week or ten days. There is some variation in the quotations made by eastern Pennsylvania furnaces. While some recent sales have been made at $15 at furnace for No. 2 foundry, it appears that for third quarter delivery only, $14.75 is quoted and in one or two instances as low as $14.50. The situation appears to be that in the absence of any general demand such buyers as did not participate in the movement of early May are going about their purchases deliberately and are able to secure some concessions from what have been recently considered to be going prices. Some sellers who have disposed of their output for several months ahead are holding for $14 at Buffalo for 2 X, while Lehigh and Schuylkill valley sellers similarly sold up are asking $15 at furnace. Foundries are making rather better reports about business prospects. We quote as follows for Northern iron at tidewater: No. 1 foundry, $15.75 to $16.00; No. 2 X, $15.50 to $15.75; No. 2 plain, $15 to $15.25. Southern iron is quoted at $15.75 for No. 1 foundry and $15.25 to $15.75 for No. 2 foundry.

Finished Iron and Steel.—The prevailing opinion regarding the promise of the future in finished lines is that, owing in part to the shortage of labor and in part to the reduced production because of hot weather, the steel mills will enter the fall with more business booked than has been the case for several years, the specifications on contracts being exceedingly large and the volume of new business not being small. The more conservative view, though not widely held, is that the volume of new business for the month or two after July 1 will be very small, for the reason that buyers generally are taking all they can get on their contracts made at the low price, with the result that they will not need material for two or three months. In a number of cases buyers have offered premiums for quick delivery, but without takers. Prices remain firm, but in spite of that fact, sporadic cases of very recent shading have been learned, indicating a character of competition which shows the hunt of one concern for the customers of another. The one line in which demand has slackened somewhat is wire and perhaps also in fabricated material. The pressure on the mills for delivery however is evidenced by the presence at the mills of the inspector or so-called hustler for the buyer. Quite a number of fair sized structural building contracts were settled, but there still remains in addition to pending work lately mentioned about 1000 tons for the Kahn Building, Thirty-sixth street and Fifth avenue; 1000 tons for the 12-story Leavitt Building on West Forty-sixth street; about 900 tons for the Loft candy factory, Broome street; 500 tons for three bridges for the Maine Central and 500 tons for Pennsylvania grade crossing work at Rahway, N. J. The Southern Railway has inquiries out for 700 freight cars and 43 passenger cars. It is now regarded doubtful that the Grand Trunk will buy tank cars. Among work recently closed is 2500 tons for the Park & Tilford warehouse, to Levering & Garrigues Company, which is also credited with a warehouse of 500 tons for Seaman Brothers; 450 tons to Hay Foundry & Iron Works, for an apartment house, West Seventy-second street; 300 tons to the Hinkle Iron Company for a building at 163d street and Southern Boulevard, and to various fabricators the following: National Fire Proofing Company's building, Boston, 450 tons; hotel, Shreveport, La., 600 tons; Pennsylvania Railroad bridge work, 200 tons; Central Railroad of New Jersey, 800 tons; station, Jamaica, Long

Island Railroad, 350 tons. The general contract has been placed for connecting the railroad tracks of the Brooklyn Bridge with a subway under the new Municipal building, but a later contract involving structural steel work is yet to be advertised. Quotations are: Steel bars, 1.36c. to 1.41c.; plain structural material and plates, 1.41c. to 1.46c.; bar iron, 1.32c. to 1.37c., all New York. Plain material from store, 1.75c. to 1.85c.

Cast Iron Pipe.—Although public lettings are few, the condition of the pipe trade is by no means stagnant. Private contracting is exceedingly active, more business of this character being in process of closing than for a considerable time. The companies purchasing privately are usually buying larger quantities than has been their custom for several years. If this condition of trade continues, pipe manufacturers feel confident that prices will shortly work to a higher level. Carload lots of 6 in. are still to be had from some makers at $21, tidewater, but most foundries quote $22 to $23.

Old Material.—The market is quiet but firm. Although shipments of steel scrap are being held up by some of the eastern Pennsylvania mills, a market can still be found for moderate quantities at about the price which has been prevailing for the past few weeks. It is surprising that prices have not gone off with the limited demand but holders stubbornly refuse to part with their stocks at concessions. The rolling mills are doing little in the market at present, and the foundries are also showing limited buying power. Dealers' prices, per gross ton, New York and vicinity, are quoted as follows:

Old girder and T rails for melting	$11.00 to $11.25
Heavy melting steel scrap	11.00 to 11.25
Relaying rails	20.50 to 21.00
Rerolling rails (nominal)	12.50 to 13.00
Iron car axles	20.50 to 21.00
Old steel car axles	15.50 to 16.00
No. 1 railroad wrought	13.25 to 13.75
Wrought iron track scrap	12.00 to 12.50
No. 1 yard wrought, long	11.50 to 12.00
No. 1 yard wrought, short	10.75 to 11.25
Light iron	5.00 to 5.25
Cast borings	7.00 to 7.25
Wrought turnings	8.25 to 8.50
Wrought pipe	10.00 to 10.25
Old car wheels	13.50 to 14.00
No. 1 heavy cast, broken up	11.00 to 11.50
Stove plate	8.75 to 9.00
Locomotive grate bars	8.75 to 9.25
Malleable cast	10.00 to 10.50

Ferroalloys.—There have been no changes in the prices of ferroalloys and the demand has been in no way exceptional. For 80 per cent. ferromanganese $48.50, Baltimore, forward delivery, is quoted, with higher prices for prompt shipment. Spot is reported in very little demand. For 50 per cent. ferrosilicon as high as $72.50, Pittsburgh, continues to be asked for carload lots by some dealers, although this price would be materially shaded for heavier quantities.

Metal Market

NEW YORK, June 26, 1912.

The Week's Prices

Cents Per Pound for Early Delivery.

	Copper, New York.			Lead		Spelter	
June.	Lake.	Electrolytic.	Tin, New York.	New York.	St. Louis.	New York.	St. Louis.
20	17.75	17.62½	48.50	4.50	4.37½	7.05	6.90
21	17.75	17.62½	48.75	4.50	4.37½	7.05	6.90
22	17.25	17.62½	.....	4.50	4.37½	7.05	6.90
24	17.75	17.62½	48.20	4.50	4.37½	7.10	6.95
25	17.75	17.62½	48.15	4.50	4.37½	7.10	6.95
26	17.75	17.62½	48.15	4.50	4.37½	7.10	6.95

There is very little activity in copper but its strong position is sustained. Tin continues to command substantial premiums but shipments from Holland promise relief. Lead is steady at unchanged prices. Antimony prices are unchanged.

New York

Copper.—In a market that is dull and almost stagnant so far as buying is concerned the high prices of copper continue to be upheld. Lake copper is quoted to-day at 17.75c. cash and electrolytic at the same figure for 30 days' delivery. Some interests are asking 17.75c. for electrolytic, spot or future. Small lots are reported to have been sold by second hands at slightly reduced prices in the latter part of last week, but they were too small to be considered as making the market. Interest in the metal has been largely directed in the last few days to the speculative activity in London, which experienced a sudden and sharp decline on Monday last with recoveries setting in the following day and continuing to-day. The London situation in speculative copper had no effect on prices here, and perhaps no effect at all except possibly to influence consumers to continue out of the market. Observers of the market here, in view of the scarcity of the metal, declare they see no reason for any material decline from present prices and that in their belief September copper will touch 18c. The strike of the employees of the National Cable & Conduit Company at Hastings, N. Y., has waged bitterly during the week and removed one large consumer from the market. The London price of copper to-day is £77 17s. 6d. for spot and £78 15s. for futures. The exports of copper this month total the rather light figure of 18,961 tons.

Pig Tin.—Premiums continue to be asked for tin, but there are prospects of prices getting closer to normal in the near future because of the arrivals of shipments of Straits tin from Holland, so avoiding the difficulties interposed by the labor troubles in London. The Potsdam is due from Rotterdam about July 5, and has on board 1040 tons and the Antwerp has about 350 tons. Buyers appear to be waiting for the arrival of these and other shipments, and as a result there has been very little activity in the New York market in the last few days. What activity there was was mostly caused by the efforts of dealers and speculators to cover their contracts. The price in New York to-day is 48.15c. and London quotations are £207 10s. for spot and £198 5s. for futures. The arrivals of tin this month have been 1873 tons, and there is afloat 2454 tons.

Tin Plates.—The market for tin plates is quiet, with $3.64 asked for 100 lb. coke plates.

Lead.—Prices for lead are steady at 4.50c., New York, the figure of the American Smelting & Refining Company, and 4.37½c., St. Louis. During a part of the week the metal was moderately active.

Spelter.—To the high price of ore, together with a steady demand, is attributed the higher prices of spelter, which has been quoted since June 24 at 7.10c., New York, and about 6.95c., St. Louis.

Antimony.—The prices of antimony stood steady and unchanged during the week at 8.12½c. for Cookson's, 7.75c. for Hallett's and 7.25c. for Chinese and Hungarian grades.

Old Metals.—Quiet conditions prevail. Dealers' selling quotations are nominally as follows:

	Cents per lb.
Copper, heavy and crucible	16.25 to 16.50
Copper, heavy and wire	16.00 to 16.25
Copper, light and bottoms	14.50 to 14.75
Brass, heavy	9.75 to 10.00
Brass, light	8.25 to 8.50
Heavy machine composition	13.25 to 13.50
Clean brass turnings	9.75 to 10.00
Composition turnings	12.00 to 12.50
Lead, heavy	4.00
Lead, tea	3.75
Zinc, scrap	5.50

St. Louis

JUNE 24.—The metal market has been quiet. Lead is quotable to-day at 4.37½c. to 4.40c., and spelter at 6.90c. Tin has followed the New York quotations absolutely during the week and quotations here have been identical with the addition of 35c. per 100 lb. for freight The same is true of Lake and electrolytic copper and Cookson's antimony, which have shown no local individuality. In the Joplin district the ore prices have kept up the pace which has been noted in recent weeks and zinc blende has been quotable around $58 for the basis grade, 60 per cent., with about $3 extra for higher grade. In calamine the tendency has been the same as in blende with 40 per cent. around $27 or $28 and the top price $33 to $35. Lead ore has been close to $56 per ton as an average. On miscellaneous scrap metals we quote: Light brass, 5c.; heavy brass and light copper, 9c.; heavy copper and copper wire, 10c.; pewter, 21c.; tinfoil, 31c.; zinc, 3.50c.; lead, 3.50c.; tea lead, 3c.

Chicago

JUNE 25.—Copper continues strong, with a steady volume of sales and advancing prices. Although the domestic quotations on tin are high as compared with London, export conditions there have greatly diminished the available supply here and famine prices prevail. In the scrap metals while demand is light the influence of higher copper values is being felt. We quote as follows: Casting copper, 17.50c.; Lake, 17.75c. to 17.87½c., in carloads for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, carloads, 49.50c.; small lots, 50.50c.; lead, desilverized, 4.45c. to 4.50c., for 50-ton lots; corroding, 4.40c. to 4.45c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 6.95c. to 7.05c. Cookson's antimony, 8.50c. and other grades, 8c., in small lots; sheet zinc is $8.65 f.o.b. La Salle or Peru, Ill., less

8 per cent. discount, in carloads of 600-lb. casks. On old metals we quote buying prices for less than carload lots: Copper wire, crucible shapes, 14.75c.; copper bottoms, 12.75c.; copper clips, 14c.; red brass, 12c.; yellow brass, 9.75c.; lead pipe, 4c.; zinc, 4.75c.; pewter, No. 1, 28.50c.; tinfoil, 33c.; block tin pipe, 44c.

Iron and Industrial Stocks

NEW YORK, June 26, 1912.

A sharp advance occurred in quite a number of stocks from Wednesday to Friday of the past week. Particularly noticeable was the advance in Can common, which was almost $5 per share. Following the display of strength on that day the market has been quiet, with values inclined to shade off. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalm., com.....	¾	Nat. En. & St., com.	15½- 15⅞
Allis-Chalm., pref.....	2½	Pressed Steel, com..	35 - 35⅞
Bald. Loco., com...	55 - 55½	Pressed Steel, pref.....	101
Bald. Loco., pref...	104¼-104¾	Railway Spr., com..	35¼- 36¼
Beth. Steel, com....	36 - 37⅞	Republic, com.....	23⅜- 24½
Beth. Steel, pref.....	69½	Republic, pref.....	79½- 80⅛
Can, com.....	33⅞- 38¾	Sloss, com.....	54 - 54½
Can, pref.....	116¼-118½	Sloss, pref.....	100
Car & Fdry., com...	58¾- 60¼	Pipe, pref.....	59 - 59¾
Car & Fdry, pref...	118½-118⅝	U. S. Steel, com...	68¼- 70⅜
Steel Foundries.....	36	U. S. Steel, pref...	110⅜-111¼
Colorado Fuel.....	30⅝- 32¼	Westinghouse Elec..	73 - 74¼
General Electric....	170½-173¼	Am. Ship, pref....	104 -104¼
Gr. N. Ore Cert....	40½- 42½	Chic. Pneu. Tool.....	50
Int. Harv., com....	119½-120¾	Cambria Steel.....	42⅝- 43⅝
Int. Harv., pref.....	119	Lake Sup. Corp....	29½- 32
Int. Pump, com.....	26	Crucible Steel, com.	13⅞- 14⅜
Int. Pump, pref....	79¼- 80	Crucible Steel, pref.	87¼- 89⅞
Locomotive, com....	41¾- 43	Harb. Wk. Ref., pref.	100 -101
Locomotive, pref.....	100		

The $10,000,000 increase in capital stock just authorized by the La Belle Iron Works, Steubenville, Ohio, will be issued as 100 per cent. stock dividend to stockholders. The new capitalization is divided into common and preferred, and in paying the stock dividend one-half of the old stock will be retired by the exchange of one share of new preferred and one share of new common for each share of the present stock.

The Inland Steel Company, Chicago, through the First Trust & Savings Bank of Chicago, the mortgage trustee, and Potter, Choate & Prentice, 55 Wall street, New York, is offering at par and interest $1,500,000 of a new issue of $10,000,000 6 per cent. bonds dated July 1, 1912, and due July 1, 1942, but callable, all or any part, on or after July 1, 1915, at 103 and interest. The new bonds will be secured by a first mortgage on all property now owned or hereafter acquired, subject only to $2,400,000 6 per cent. bonds of 1908 maturing $150,000 each year, the last due in 1928. The company covenants not to renew these underlying bonds and may use part of the proceeds of the new issue in retiring them. The company covenants that it will maintain net quick assets of 50 per cent. of the amount of outstanding bonds of this issue, but not less than $2,500,000. Part of the proceeds of this issue is to be expended for a by-product coking plant with daily capacity of 1,000 tons of coke.

Dividends Declared

The Otis Elevator Company, regular quarterly, 1½ per cent. on the preferred and 1 per cent. on the common stock, both payable July 15.

The Colorado Fuel & Iron Company, 5 per cent. on the preferred stock, 2½ per cent., payable July 20, 1912, and 2½ per cent. payable January 20, 1913.

The American Screw Company, regular quarterly, 2½ per cent., payable June 29.

The American Seeding Machine Company, regular quarterly, 1 per cent. on the common and 1½ per cent. on the preferred stock, both payable July 15.

The American Shipbuilding Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 15.

The Dominion Iron & Steel Company, Ltd., regular quarterly, 1 per cent. on the common stock, payable July 2.

The Nova Scotia Steel & Coal Company, Ltd., regular quarterly, 1½ per cent. on the common stock and 2 per cent. on the preferred stock, both payable July 15.

The M. Rumely Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 1.

The Union Typewriter Company, regular quarterly, 1¾ per cent. on the first preferred and 2 per cent. on the second preferred stock, both payable July 1.

The Westinghouse Electric & Mfg. Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 15. No action was taken on common dividend.

The American Rolling Mill Company, regular quarterly, 3 per cent. on the common and 1½ per cent. on the preferred stock, both payable July 15.

Personal

C. T. Johnson, general manager of sales of the Republic Iron & Steel Company, Youngstown, Ohio, has sailed for Europe on a business trip.

John Johannigman, for the past 10 years secretary of the Oesterlein Machine Company, Cincinnati, Ohio, has resigned his position and intends to enter the machine tool manufacturing business.

Frank L. Miller, formerly with the Southwark Foundry & Machine Company, Philadelphia, has accepted the position of chief engineer with the Parkersburg Machine Company, Parkersburg, W. Va.

Harry W. Benn, connected for nearly 30 years with the Edgar Thomson works of the Carnegie Steel Company at Bessemer, Pa., will retire July 1 to devote his time to private interests. Mr. Benn is one of a group of men whom Andrew Carnegie called the Old Guard, composed of men who became associated with him after the building of the Edgar Thomson works in 1873.

E. H. Wheeler, formerly superintendent of the Meadville Malleable Iron Company, Meadville, Pa., has accepted the position of superintendent of the malleable department of the Oliver Chilled Plow Works, South Bend, Ind.

Philip Pastre, formerly connected with the New York State Castings Company, Syracuse, N. Y., and the La Belle Iron Works, Steubenville, Ohio, has been placed in charge of the sales department of the Basic Mineral Company, Pittsburgh.

W. J. Snyder, formerly with the E. M. Moore Company, has been appointed Pittsburgh agent of the Foster Engineering Company, Newark, N. J., with offices in room 518, Park Building, Pittsburgh.

W. H. Meyst, 411 First National Bank Building, Chicago, has been appointed Western representative for the Buffalo Copper & Brass Rolling Mill.

E. L. Murphy has been appointed to succeed F. A. Buss as the Western representative of the Ohio Brass Company, Mansfield, Ohio, with offices in the Fisher Building, Chicago.

R. E. English, formerly of the Lodge & Shipley Machine Tool Company, has been appointed manager of the machine tool department of the Charles A. Strelinger Company, Detroit, Mich.

Harry Scullin, president Scullin-Gallagher Iron & Steel Company, St. Louis, manufacturer of open hearth steel castings, sailed for Europe, June 15. He expects to be abroad for some months, visiting points in Africa and Asia as well as Europe.

Earl E. Hunner, Duluth, has been appointed chief mining engineer for the Arthur Iron Mining Company, which is the corporate name under which the Great Northern iron ore properties will be handled. Mr. Hunner has been connected for a number of years with the Oliver Iron Mining Company.

F. A. Ogden, general freight agent of the Jones & Laughlin Steel Company, Pittsburgh, who retired last week as president of the Traffic Club of Pittsburgh, was presented with a diamond pin by the members.

E. C. Sattley, of the Page Woven Wire Fence Company, Monessen, Pa., has been elected chairman of the Traffic Club of Pittsburgh, and D. A. Aiken, traffic manager of Spang, Chalfant & Co., Inc., Pittsburgh, has been elected second vice-president of the club.

Herbert Dupuy, chairman of the Crucible Steel Company of America, Pittsburgh, has been elected a member of the board of trustees of the Carnegie Institute.

Obituary

MATTHEW J. KEELY, for forty years superintendent of the smelting works of Bruce & Cook, dealers in tin plates, sheets and metals at 190 Water street, New York, died at his home in Brooklyn, June 24, after a long illness, aged 75 years. He had held the one position throughout his long connection with the metal house. He leaves a widow and several children.

Pittsburgh and Vicinity Business Notes

The report that the Brier Hill Steel Company, Youngstown, Ohio, will abandon the puddling plant in its Empire works at Niles, Ohio, is officially denied.

The plant of the Dilworth Paper Company, New Castle, Pa., is to be torn down, rebuilt and equipped with modern machinery, including boilers and beading machines.

The California Tool Works Company, California, Pa., will build an addition to its plant on property recently leased. New machinery, including a steam hammer, will be installed.

The statement has been published that the Republic Iron & Steel Company would abandon its oldest furnace property at Youngstown and that a railroad company is negotiating for the site. There are no negotiations under way, the company says, for selling this property, and the operation of the Hannah furnace, the nearby shafting works and the Mahoning Valley works will be continued as heretofore.

The Massillon Bridge & Structural Company, Massillon, Ohio, is building a new erecting shop in that city on a site formerly occupied by mill buildings of the Republic Iron & Steel Company. The building will be 156 x 400 ft., with steel frame. The shop will be fully equipped with electric traveling cranes, and the raw material as it comes from the mills will be handled under a gantry crane 100 ft. wide running on a track 350 ft. long. The finished material will be handled in the other end of the shop by a gantry crane running on a track 60 ft. wide by 400 ft. long. This new shop will about double the company's capacity in fabricating structural steel.

The Pittsburgh Sheet & Tin Plate Company will break ground for its new sheet and tin plate plant at Morgantown, W. Va., within the next week or two. It will comprise six hot sheet mills, three cold mills, four hot tin mills and four cold tin mills, built tandem. The plant will be laid out with a view of extensions. It is stated that the money has been subscribed and that as soon as the plans are approved by a committee of citizens the work of construction will be started.

The report that Edwin N. Ohl, W. H. Schoen and others of Pittsburgh, who contemplate buying the plant of the New Castle Forge & Bolt Company at New Castle, Pa., will manufacture steel cars is officially denied. The new company formed to take over this plant, known as the New Castle Steel & Iron Company, proposes to manufacture the same line of products formerly made by the New Castle Forge & Bolt Company and will add some specialties used in cars.

The Beeson coke works in the Connellsville region, owned by the Stewart Iron Company, Ltd., Sharon, Pa., has been started up after being idle for about three years. The coke made will be used in the company's blast furnace at Sharon.

The Youngstown Bronze & Iron Company, Youngstown, Ohio, has increased its capital stock from $50,000 to $65,000.

The Pittsburgh Crucible Steel Company has modified the plans for its open hearth steel works now being built at Midland, Pa., and will install eight 60-ton open hearth furnaces instead of six as originally intended.

The American Bridge Company, Pittsburgh, has taken a contract for two more steel barges to be built at its works at Ambridge, Pa., for the Rogers Sand Company.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, put in operation on Monday its new black plate mill and the product of black plate will be sold in the open market.

The Pittsburgh Electric Furnace Company, Manufacturers' Building, Pittsburgh, has received orders for electric furnaces as follows: United States Reduction Company, Pittsburgh, aluminum; Great Western Refining & Sintering Company, St. Louis, brass turnings; P. Healy, Evansville, Ind., tilting furnace for brass; Electric Railway & Improvement Company, Chicago, copper.

The Stanley Works, New Britain, Conn., which operates a branch works at Niles, Ohio, will make some large improvements and additions to the latter plant. New buildings will be erected, one of which is to be 72 x 144 ft.; another 49 x 50 ft.; a warehouse 80 x 104 ft. An extension is to be made to the crane runway of 150 ft. All of the machines for making hinges now in the factory of the company at New Britain will be moved to Niles, and that part of the business will be carried on exclusively from the Niles plant.

The new blast furnace to be built by the Youngstown Sheet & Tube Company will be 16 ft. in diameter at the hearth, 22 ft. at the bosh and 88 ft. high. The dimensions were incorrectly given in a recently printed item.

Judicial Decisions of Interest to Manufacturers

ABSTRACTED BY A. L. H. STREET

CONTRACT TO SELL PRODUCT OF PLANT CONSTRUED.—A contract to sell the product of a plant, "estimated" at two or more cars per week, does not bind the seller to produce that quantity; he being merely bound to use good faith to produce it. (Louisiana Supreme Court, Bautovich vs. Great Southern Lumber Company, 56 Southern Reporter 1026.)

ESSENTIALS OF ACTIONABLE UNFAIR COMPETITION.—To constitute "unfair competition" in the eyes of the law, it must appear that the party complained against has attempted to pass his product off as that produced by a competitor. That a manufacturer adopts features of a competing article does not show violation of the competitor's rights if the feature is common to articles of that class. (United States Circuit Court of Appeals, Sixth Circuit; Edward Hilker Mop Company vs. United States Mop Company, 191 Federal Reporter 613.)

ACCEPTANCE OF GOODS BY BUYER.—A buyer of goods accepts them by doing anything which is consistent only with his ownership. Where a contract to sell refrigerating machinery required the buyer to accept or reject it within a specified time after installation and test, retention of the machinery after that time constituted an acceptance, though the buyer secretly intended to reject the machinery and retained only to prevent a loss of goods voluntarily brought to its warehouse. (Illinois Supreme Court, Fred W. Wolf Company vs. Monarch Refrigerating Company, 96 Northeastern Reporter 1063.)

DAMAGES RECOVERABLE FOR BREACH OF WARRANTY.—The measure of damages recoverable for breach of warranty as to the quality of goods sold is the difference between their actual value and their value had they been as represented. (Kentucky Court of Appeals, L. A. Becker Company vs. Baker, 142 Southwestern Reporter 222.)

SUBSTITUTION OF PARTS IN MACHINERY SOLD.—Where suit for the price of a "Columbus Iron Works" ice plant was defended on the ground that the machinery delivered consisted of various parts of machinery of other manufacturers assembled, the seller, to sustain his right to recover, could not show that though some of the minor parts of the machinery were not manufactured by the Columbus Iron Works, yet the substituted parts correlated with the whole, and were not of such character as to alter the distinctive character of the machinery as a "Columbus Iron Works" plant, and were equal in efficiency in all respects to the parts for which they were substituted. (Georgia Supreme Court, Huson Ice & Machine Works vs. Harris, 73 Southeastern Reporter 343.)

AUTHORITY OF CORPORATION'S PRESIDENT.—The mere fact that one is president of a corporation gives him no inherent authority to make contracts on its behalf; nor does the fact that management of the company's ordinary business is entrusted to him show implied authority in him to buy expensive machinery, unless the company is a dealer therein. (West Virginia Supreme Court of Appeals, Varney & Evans vs. Hutchinson Lumber & Mfg. Company, 73 Southeastern Reporter 321.)

VALIDITY OF MUNICIPAL TAX ON IMPORTED GOODS.—Under the provision of the Federal constitution which prohibits levy by states of duties on imports, raw material imported for manufacture is not subject to a municipal tax so long as it remains in the original packages, unless so held for an unreasonable length of time. (Missouri Supreme Court, American Mfg. Company vs. City of St. Louis, 142 Southwestern Reporter 207.)

EXCUSE FOR DISCHARGING EMPLOYEE.—Repeated violations by a factory employee of a rule requiring workmen to keep their street clothing in a dressing room maintained for the purpose warrants a man's discharge, though he has been employed for a fixed period. (Kentucky Court of Appeals, Thomas vs. Houston, Stanwood & Gamble, 142 Southwestern Reporter 214.)

DUTY TO GUARD AGAINST FLYING PARTICLES OF STEEL.—An employer is not negligent in failing to provide an experienced employee engaged in chipping steel plates with goggles to avoid injury from flying particles of steel if it is customary for the employees to provide them; but an inexperienced workman should be warned against such dangers. (New York Supreme Court, Second Appellate Division; Bilicki vs. Staten Island Shipbuilding Company, 132 New York Supplement 564.)

The Kentucky Solvay Coke Company

The Kentucky Solvay Coke Company has been incorporated for $650,000 and the organization meeting was held at Ashland, Ky., May 16, at which the following were elected: R. G. Hazard, president; E. C. Witherby, vice-president and general manager; J. G. Hazard, secretary and treasurer. Other directors, John Russell, W. B. Seaton, W. G. Eaton, F. R. Hazard, E. L. Pierce and H. H. S. Handy.

The directors decided to proceed at once with the building of a coke oven plant near Ashland, Ky., which is to have a coking capacity of about 1000 net tons of coal per day. Ashland is the natural outlet northward for the coking coal from the coal fields of eastern Kentucky and at the same time can easily be reached by coal from the West Virginia fields. In its immediate vicinity are a number of blast furnaces to which a good portion of the output of the coke plant will be shipped.

The Semet-Solvay Company, Syracuse, N. Y., has contracted to build and operate the plant. In addition to coke, the usual by-products of coal will be manufactured. The enterprise was planned and the company promoted by Eaton, Rhodes & Co., Cincinnati.

The Vulcan Engineering Sales Company, with offices at 2014 Fisher Building, Chicago, Ill., and which has recently taken over the sales and product of the Q M S Company, Mumford Molding Machine Company and Hanna Engineering Works, announces the connection with the firm of J. T. Georgeson, formerly with the machinery department of J. T. Ryerson & Son, Chicago. He will take active hold on the sales of the Q M S Company products especially, and will also follow such new lines of devices as the Vulcan Engineering Sales Company expects very shortly to control, the new lines being principally punches, shears, air compressors and all other lines necessary to completely equip structural shops, boiler shops or foundries.

At the conference held in Buffalo, N. Y., last week between the Western Bar Iron Association and the Amalgamated Association a settlement was reached on the puddling and finishing scales. For the year commencing July 1, puddlers will receive $5.25 for puddling on a one cent card, and an advance of 15 cents per ton for each advance of 5 cents per 100 lb. on the bar iron card. The present puddling scale is based on $5 a ton and advances 25 cents per ton on each advance of 10 cents per 100 lb. on the bar iron card. The scale for finishing mills for the year beginning July 1 is from 7½ to 10 per cent. higher than the present scale.

The Sharon Steel Hoop Company, Sharon, Pa., has declared its regular quarterly dividend of 1¾ per cent, payable June 29, and has increased its stock 33-1-3 per cent, making the total capital $2,500,000. The new stock has been issued to present stockholders at par, or $50 a share. The additional capital thus acquired is to pay for betterments and additions to equipment made by the company in the past year. The company has an open-hearth steel plant and manufactures billets, sheet bars, hoops and bands.

The Brier Hill Steel Company, Youngstown, Ohio, has placed a contract with the Chapman Engineering Company of Mount Vernon, Ohio, for 22 10-ft. Chapman rotary gas producers which will serve the new open-hearth steel plant now being built and also the soaking pits. These machines are continuous and automatic in their operation and work on a principle that is somewhat novel in the making of producer gas. It is said that some remarkable results have been shown by producers of this type during long periods of service.

On Monday of this week, for the second time, Samuel Gompers, president of the American Federation of Labor; John Mitchell, one of the vice-presidents, and Frank Morrison, secretary, were adjudged guilty by the Supreme Court of the District of Columbia of contempt of court in connection with the Buck's Stove case. The court imposed a sentence of one year on Gompers, nine months on Mitchell, and six months on Morrison. Another appeal will be taken.

The Lima Crucible Steel Company is the name of a new concern which will engage in business in Lima, Ohio, about July 1. The company has secured the factory building formerly occupied by the Humane Horse Shoe Company, which is being remodeled and enlarged. It will start with four crucible furnaces and others will be added as business warrants. G. S. Rinebolt has resigned the superintendency of the Ohio Steel Foundry Company, Lima, to take charge of the new plant.

The Worcester Pressed Steel Company, Worcester, Mass., has extended the time on which it will let a contract for the erection of a concrete and steel mill building. The structure is to be one story, 100 x 100 ft., with monitor roof, and is to be erected this summer. The contract will be let before August 1. The company desires to receive bids and will, on request, furnish full information regarding the building.

Saxton furnace, in the Juniata Valley, Pa., operated by Joseph E. Thropp, is to be blown in about July 4. This stack will replace the Earlston furnace, which is to be blown out for repairs.

The Lackawanna Steel Company has been considering the blowing in of another of its Lebanon, Pa., furnaces, but action has been delayed owing to unsatisfactory labor and fuel conditions.

It is stated that the Reading Iron Company, Reading, Pa., will probably blow out one of its furnaces in the near future.

New Tools and Appliances

This is essentially a news department for which information is invited

Portable Electric Drilling Machine.—The American Electric Tool Company, West Newton, Mass., has recently brought out a portable electric drilling machine having a capacity of ½ in. in steel. The motor armature runs on ball bearings and the gears are of hardened steel and Parson's bronze. The motor is air cooled and instant control is obtained by a quick break switch on one of the side handles. Two speeds, 350 and 650 r.p.m., are available and changes from one to the other can be made while the machine is in operation by manipulating a thumb nut on the front head. The weight of the tool is only 23 lb.

Regrinding Gate Valve.—Fred K. North, Pottstown, Pa., has been granted a patent on a new type of double disk gate valve, which is so designed that the adjacent faces of the gate or disk and the seat can be readily reground when worn. The general construction of the valve is practically the same as the ordinary gate valve with the exception that the gates have a movement up and down with the valve stem as well as a relative movement with reference to the stem and the head. The gates have inwardly projecting lugs on their inner faces, the upper ones supporting removable bolts and engaging with inclined cam slots in the head. The lower lugs carry a removable bar passing through inclined slots at the lower end of the head, the arrangement being such that as the valve stem is raised the first movement of the head causes the slots to draw the valve gates toward each other, after which they can be readily raised. When it is desired to regrind the disks, they are disengaged from the head by removing the bars and bolts which fasten them thereto. When this has been done the gates are coated with a little emery and oil and turned while held in contact with the valve seats, thus causing a regrinding of the surfaces in contact, in the same way that a globe valve is reground.

File and Tool Handles.—A handle with a steel-bound inner core to prevent splitting has been added to the line of indestructible file and tool handles made by the J. L. Osgood Tool Company, 121 Erie County Bank Building, Buffalo, N. Y. Six different sizes varying in length from 4 to 5⅝ in. are made, the smallest being intended for files from 2 to 4 in. long, while the largest is designed for those ranging from 14 to 20 in. In addition to these file handles a line of screw driver and tool makers' handles has also been added. In the latter a tough wooden core is reinforced by a steel tube and the grip is of soft, flexible cork.

Steel Corporation Dissolution Suit

Testimony of Foster Milliken, E. C. Felton, Powell Stackhouse and Frederick Strauss

The Steel Corporation hearing was resumed on Wednesday, June 19, after an adjournment of two days. Foster Milliken, of Milliken Brothers, Inc, was recalled. An unsuccessful effort was made to link the failure of his company, which built a steel plant on Staten Island, to the powers of the Steel Corporation in the banking field. Mr. Milliken told of the difficulties encountered by the independents when the American Bridge Company, a subsidiary of the Steel Corporation, was formed. He recalled that the American Bridge Company managed to get its raw material, chiefly rolled steel, cheaper than the independents. He said his firm in 1900 and 1901 did work aggregating 25,000 to 30,000 tons annually before it moved from Brooklyn to its Staten Island plant.

"Isn't it true," asked Mr. Severance, for the Steel Corporation, "that from this time down to the time that you went into the hands of a receiver your business increased?"

"Yes," said the witness.

"And you made money?"

"Yes."

"And you were competing with the American Bridge Company?" The witness said that his firm was and then the lawyer wanted to know if it were not true that the difficulties leading to a receivership came about through the mistake of an engineer in estimating the cost of a new steel plant on Staten Island. Mr. Milliken said that the engineer had underestimated the cost of the plant some $2,000,000.

On the redirect examination the Steel Corporation lawyers rose with protests against further inquiry into the receivership saying that Mr. Milliken's statement had shown that the Steel Corporation had nothing to do with it.

Jacob M. Dickinson, for the Government, said that an attempt had been made to rehabilitate the company and that the Millikens thought they hadn't received all the accommodations they thought they deserved from the New York banks.

"The evidence may tend to show," said Judge Dickinson, "that by moneyed influence the company was prevented from being rehabilitated."

Mr. Severance wanted to know if Judge Dickinson intended to connect the Steel Corporation with the moneyed influence.

"That's what we don't know," said Judge Dickinson. "You brought up the subject on cross-examination."

"But you have no right to go into the matter until you know what connection it has," was the retort.

There was a long discussion with threats of taking the question to court and the Government counsel finally were given the privilege of recalling the witness after satisfying themselves that the moneyed influence exerted against the company had some relation to the Steel Corporation.

President E. C. Felton Testifies

E. C. Felton, president Pennsylvania Steel Company, was questioned on the relations of his company with other rail-making companies before the formation of the steel rail pool in 1900. He admitted that both the Maryland Steel Company and the Pennsylvania Steel Company were members of a steel rail pool from 1900 to the latter part of 1905. He said, however, that no member of the pool ever agreed to sell at the minimum price.

"Did you have a secretary or a commissioner?"

"We had a man to whom we used to make reports on tonnage shipped."

"Did you have an apportionment?"

"Not as to rails. We were always free to ship what rails we pleased."

A percentage of tonnage was agreed upon, he said, and the members of the pool who ran ahead of their percentage paid a certain sum to those who ran behind. There was a similar scheme of equalization when one member sold at a higher price, than the others.

"Charles M. Schwab and Judge Gary," he said, "were present at meetings as representatives of the Steel Corporation."

Powell Stackhouse Called

Powell Stackhouse, president of the Cambria Steel Company till 1910, was asked about competitive conditions prior to the formation of the Steel Corporation between the Carnegie and Illinois steel companies.

He testified that there had been "savage competition" between them in 1896-97 as the result of the violation of an agreement, but he could not remember which company was the offender. Pool combinations in which the Cambria had taken part were the structural pool and the plate association, but the witness said that each in turn was "dropped like hot cakes" when their members were advised by counsel that they were illegal.

Pools had been customary in the trade, he said, ever since the manufacture of rails had been started in this country, and he called the Pneumatic Association, which lasted many years, the father of all pools. This combination was among those who manufactured their product under the Bessemer patents. The structural pool was described as having 10 members or more, including the Carnegie and the Illinois steel companies. It was organized after the fight between these two companies in 1896-97, which he described as the most disastrous known to the trade.

"And a line of soup houses stretched from New York to Chicago," said Mr. Lindabury, for the Steel Corporation.

"Yes," replied the witness.

"It was the soup house era, wasn't it?"

"It was everybody to the soup house in those days," said Mr. Stackhouse.

The pools, he said, were active only in bad times.

On direct examination Judge Dickinson asked the witness if any of the steel mills failed as a result of the dissolved associations.

"I wouldn't say they failed directly because of that. Some of them quit. The reason seemed to be that 'tired feeling.' "

Taking over the cross-examination again, Mr. Lindabury brought out the fact that since 1901 the price of steel rails has been $28 without any consideration of a reduction below that. Mr. Stackhouse said the independents would have raised the price at different times if they could because the quality and demand for rails would have warranted $35.

"Why didn't the independents raise the price?" was asked.

"The Steel Corporation was against the increase in prices."

"That is, the low price of steel rails has been preserved by the Steel Corporation and the $28 rate is due entirely to it?" asked Mr. Lindabury.

The witness said that independents had tried to get the Steel Corporation to increase the price at various conferences, but the Steel Corporation had stood pat. There was no written agreement as to the $28 price, the witness said, but because of the Steel Corporation's refusal the independents had to sell at the low rate.

Frederick Strauss Testifies on Wire Syndicate

Frederick Strauss of the banking house of J. & W. Seligman & Co. was called to tell what share his firm had in the formation of several of the companies which became subsidiaries of the Steel Corporation and the terms on which they were floated.

The syndicate which furnished $28,000,000 cash for the American Steel & Wire Company of New Jersey, he said, had received $28,000,000 in preferred stock and $16,800,000 in common stock on the basis of $1 in preferred and sixtenths of $1 in common stock for every dollar of cash supplied.

Holders of preferred stock of the American Steel & Wire Company of Illinois got $12,000,000 perferred stock and $7,200,000 common stock in the New Jersey corporation for what they held in the Illinois organization. The holders of common stock got $14,400,000 of New Jersey common, 1 2-10 shares for each share they held in the Illinois company. Of the common stock of the New Jersey corporation $11,600,000 was distributed, the witness testified, to promoters and bankers. Wassermann Brothers, of New York, got $400,000, Baldwin Guerney & Co., of Chicago, $7,400,000, and J. & W. Seligman & Co. $3,800,000.

There will be no more hearings until the middle of September.

Spectacular Destruction of a Steam Boiler

Highly Favorable Showing of the Jacobs-Shupert Locomotive Firebox

The firebox destruction test made by the Lukens Iron & Steel Company at its plant in Coatesville, Pa., for the Jacobs-Shupert U. S. Firebox Company, on June 20 proved the superiority of the Jacobs-Shupert firebox over the ordinary radial stay firebox in its resistance to explosion. An examination of the Jacobs-Shupert firebox, which was uninjured, and the radial stay box, the crown sheet of which pulled away from the stays, is now being made by a force under the direction of Dr. W. F. M. Goss, dean of the College of Engineering, University of Illinois, who had charge of the tests.

Two full size locomotive boilers, designed for high speed heavy passenger service, were each subjected to severe low water tests. Both boilers were identical in size and design, except that one had a Jacobs-Shupert sectional firebox built by the Jacobs-Shupert U. S. Firebox Company, while the other had an ordinary radial stay firebox. For the purposes of these tests, both boilers were mounted in a field and 50 ft. apart, and were operated from a "bomb proof" located 200 ft. away from the nearest boiler. Oil was used for fuel because of the danger to which a fireman shoveling coal would have been exposed.

In the process of testing, each boiler was brought to a condition of operation closely approaching maximum power estimated to be 1400 hp., which is equivalent to that required to haul a heavy passenger train at 60 miles per hour. The supply of feed water was then shut off, but all other conditions were continued unchanged. The water level gradually fell under control exposing the crown sheet and other portions of the heating surface to the full effect of the fire. Under normal operating conditions, these surfaces are protected from overheating by contact with the water. In these tests the lowering of the water level deprived the plates of this protection, and they became red hot.

The boiler having the Jacobs-Shupert sectional firebox was continuously tested under these severe conditions for 55 min. without developing any failure, notwithstanding the fact that the level of the water fell to a point more than 25 in. below the crown sheet. The water gauge glass did not read below 25 in. The test was then discontinued because the small amount of water remaining did not evaporate sufficiently fast to supply the draft necessary to maintain the fire. At the conclusion of this test, the Jacobs-Shupert firebox was apparently in good condition, and ready for further service.

The ordinary radial stay boiler was then tested under conditions identical to those above described. After the test of the ordinary boiler had been in progress for 23 min., and the water level had fallen to 14½ in. below the crown sheet, an explosion occurred. The crown sheet and the stays, which hold it in place, having become highly heated, pulled away from each other and released the pressure in the boiler. The discharge of steam was through the firebox and the force of the explosion, amidst clouds of steam and smoke, was sufficient to throw parts from the furnace in all directions for a considerable distance, and to lift the entire boiler, weighing 40 tons, several feet above its foundation. The damage to the boiler was such as to make necessary its reconstruction.

The boiler having the Jacobs-Shupert sectional firebox ried between 215 and 225 lb. for the first 27 min., and gradually dropped thereafter until it reached 50 lb. at the end of the test. The steam pressure on the radial boiler varied between 220 and 230 lb., being 228 lb. when failure occurred.

These tests were witnessed by 8000 persons, among whom were several hundred railroad men, government officials, engineers and scientists from many different parts of the country, as well as abroad. The tests have demonstrated conclusively that it is possible to construct a locomotive boiler with a firebox of sectional construction immune from the dangers of disastrous explosion, and thus prevent the yearly toll now paid in loss of life and property, caused by the explosion of locomotive boilers. Statistics show that an average of 50 locomotive boilers explode each year, causing a property damage of several millions of dollars, the loss of a hundred or more lives and the injury of many others.

The National Pipe and Supplies Association

Preparatory steps were taken at the meetings of the National Association of Jobbers of Wrought Iron Pipe and Fittings and the National Association of Jobbers of Plumbing Supplies in Atlantic City in April to merge into one organization, to be named the National Pipe and Supplies Association, and the month of May was devoted to the accomplishment of the merger and inducting the new officers. President J. P. Hartnett has announced the completion of the work and the officers and permanent committees are as follows: President, J. P. Hartnett, L. M. Rumsey Mfg. Company, St. Louis; first vice-president, A. L. C. Scott, Pacific Hardware & Steel Company, San Francisco; second vice-president, Oscar J. Saxe, Dalton-Ingersoll Mfg. Company, Boston; treasurer, C. J. Cornell, Jr., Cornell & Underhill, New York; secretary, George D. McIlvaine, Pittsburgh. Executive Committee, F. M. Sheldon, Braman, Dow & Co., Boston; A. A. Merkel, Merkel Bros., Cincinnati; W. M. Pattison, W. M. Pattison Supply Company, Cleveland; W. T. Todd, Somers, Fitler & Todd, Pittsburgh; George V. Denny, Georgia Supply Company, Savannah; J. B. Rahm, United States Supply Company, Omaha; George H. Bailey, Bailey-Farrell Mfg. Company, Pittsburgh; A. A. Tomlinson, Virginia-Carolina Supply Company, Norfolk. Advisory Board, A. E. Ford, Ford & Kendig Company, Philadelphia; Charles H. Simmons, John Simmons Company, New York; C. V. Kellogg, Kellogg-Mackay Company, Chicago. The secretary will be in charge of the new headquarters, suite 908, Oliver Building, Pittsburgh, Pa.

Making Accurate Metal Working Machines

What accuracy really means and what is involved in the manufacture of accurate metal working machinery are suggested in a remarkable bulletin of 32 large size, illustrated pages issued by the American Tool Works Company, Cincinnati, Ohio. While the publication is primarily to emphasize the character of workmanship and general care exercised by the company, it gives an insight into some of the details of manufacture that are not thoroughly appreciated by even machine users. The illustrations show the numerous varieties of jig used in building the company's lathes and planing, shaping and radial drilling machines. A jig designing department, the company states, is maintained in addition to the regular engineering corps. In a measure the method of building the different machines is outlined, but more particularly the descriptive matter relates to the assembling of the parts to secure their accurate relationship. It is probable that a copy of the pamphlet may be had for the asking.

Canadian Bounty Payments.—The total amount paid in bounties by the Canadian Government for the year ending with March 31 last was only $538,529, compared with $1,591,663 for the preceding year. The bounties paid were as follows: Wire rods, $160,750; crude petroleum, $141,935; lead, $179,288; manila fiber, used in the manufacture of binder twine, $50,556. Since 1896, when the bounty system was introduced, the total payments have been a little over $21,000,000, of which $7,000,000 went for pig iron, over $4,000,000 for puddled iron bars, and $6,000,000 in steel bounties.

A Bethlehem Steel Company Purchase.—The Bethlehem Steel Company recently purchased the site of the New Jersey Zinc Company's spiegel furnace at South Bethlehem, Pa., the tract including approximately 12 acres on the Lehigh River. Some statements have been published as to plans of the Bethlehem Steel Company for building additional works on the land thus acquired, but the company advises us that it has not decided on its programme of improvements as yet. The spiegel furnace of the New Jersey Zinc Company at South Bethlehem was built in 1882, but was not operated for some time previous to its dismantling in 1911.

New Open Hearth Furnace Designs

How Experiments Led to Changes in Combustion Arrangements

BY HERBERT F. MILLER, JR.*

The present open hearth furnaces are so designed that the fuel has, as its source of combustion, an overlying layer of preheated air. This means that the bottom of the layer of gas is not supplied with enough oxygen to completely burn it, and as a result the gas does not develop the temperature it should attain next to the bath where it is needed.

The air is overhead for two reasons:

1. It acts as an insulator between the roof and the flame.

2. The air being heavier, presses the flame down on the bath more or less, thus making the flame do its work by contact rather than by radiation.

Departures in design of open hearth furnaces have been held in check by two main considerations; namely, the gas cost and the brick cost, and the problem of making the two costs dovetail efficiently is a source of ceaseless worry to the open hearth furnace men.

In the furnace of the open port or Homestead type, the combustion and control of the gas is affected almost wholly by the width of the port. If the port is made narrow the gas layer increases in depth. This thick layer of gas acts as an insulator of itself, preventing the bottom gas layers from combining with the overhead layers of the air. Thus a high gas cost is attained by poor combustion. The control of the gas in this case is excellent and the brick cost low. On the other hand, if the port is widened so that the gas layer becomes thinner, the opportunity for combustion is increased, but the control of the gas is lost, resulting in a high brick cost due to burning.

The producer gas type is affected by a loss of control of gas as the rings in the arch of the gas port drop down or burn back. But here the poor combustion of the lower part of the gas layer by the overhead layers of air is more definitely emphasized than it is in the open port type, because of a greater distance from the source of combustion.

Both of the above-mentioned types are used when oil is used for fuel. Indeed there seems to have been no special effort made to design a furnace especially for oil or liquid fuel. When oil is used in the two types, the point of the burner is projected across the uptake, for the combustion is so perfect when the point of the burner is drawn back of the air uptake that the intense heat created melts the roof and bottom of the port. The author has actually caused magnesite to melt under these conditions.

The logical questions that present themselves now are:

1. If the narrow port in Fig. 1 gives such excellent control of the flame, is there not some simple and efficient means by which good combustion can be obtained without sacrificing the control of the flame?

2. And is there not some simple construction that will lengthen the life of the gas ports in the producer gas furnace without resorting to troublesome water cooling devices, and at the same time providing for a far better combustion?

3. Also, if such an intense heat can be created by discharging fuel across the uptake, cannot some form of construction be devised wherewith the flame can be made as hot unattended by evil effects to the roof and port?

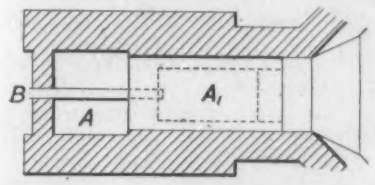


Fig. 1

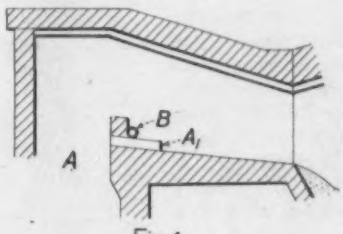


Fig. 4

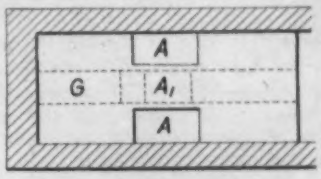


Fig. 7

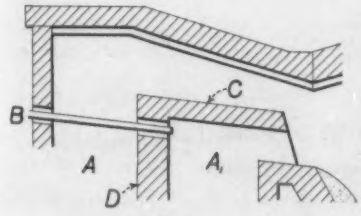


Fig. 2

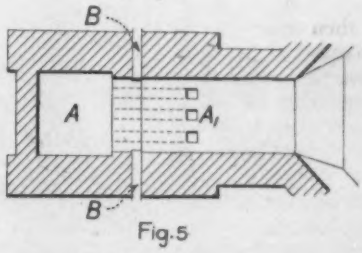


Fig. 5

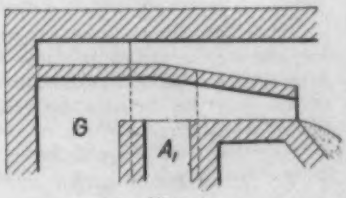


Fig. 8

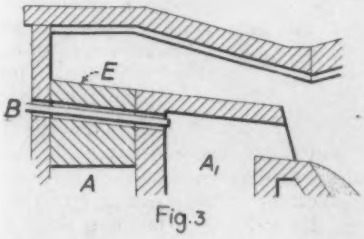


Fig. 3

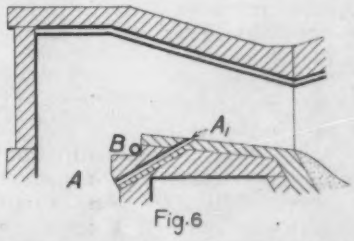


Fig. 6

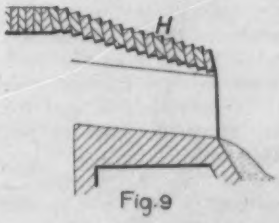


Fig. 9

IMPROVEMENTS IN OPEN-HEARTH FURNACE DESIGN

Fig. 1 is a plain view of the port designed especially for liquid fuel; B is the water-cooled fuel pipe crossing uptake A and terminating above and not extending entirely across A_1.

Fig. 2 is a longitudinal section of Fig. 1. This view shows uptake A and A_1 with arch over A_1.

Fig. 3 is the same as Fig. 2 except that the burner is not water cooled. The fuel pipe instead crosses uptake A through a hollow pier E, which protects it from excessive heat.

Figs. 4 and 6 are longitudinal sections of the open port type adapted for natural gas, etc. In Fig. 4 the passages for putting air underneath the gas are parallel with the bottom of the port. This is constructed when a bridge wall is used. The passages A_1 are inclined, due to the use of the level port instead of the bridge wall type.

Fig. 5 is a plan view of Fig. 6 showing the passages A_1 as they terminate in the port floor.

Fig. 7 is a plan of the producer gas type; G is the gas uptake; A and A the air uptakes for the overhead layer of air and A_1 is the air uptake for the lower layer of air.

Fig. 8 is the longitudinal section of Fig. 7. This shows uptake A_1, supplying the lower layer of air terminating in the gas port.

Fig. 9 is a longitudinal section of the construction used in the gas port arches of Figs. 1, 2, 3, 7 and 8. This view shows the brick in the ring inclined away from the bath at a substantial angle.

Experiences Leading to Experiments

Each of these questions has been solved by utilizing the same principle with a design suitable to the fuel. The principle of a wide port—good combustion and poor control of the flame—was demonstrated when one of our furnaces was built, which made only 187 heats. The average time was 6 hr. 30 min. on cold charges. The high temperatures required to pour steel for 1 hr. to 1 hr. and 55 min. and making 175 to 270 stops made it impossible to save the furnace at the end of the heat with the gas control.

In our next run the cross section of the port was reduced 3½ sq. ft. This gave a very low and safe flame

*Open hearth department, Verona Steel Castings Company.

which was smoky on the bottom. The average time of the heats however was 8 hr. and 15 min. When this smoky flame was noticed it occurred to the author that the control of the flame might not be sacrificed in order to get good combustion if some construction could be devised suitable to the open port type of the furnace.

The following experiment was made which clearly brought to light the solution of this problem: A piece of pipe 4 in. in diameter and about 5 ft. long was placed on the port. One end was out in the air uptake, the other well down on the port under the gas layer. It was thought that the natural draft of the furnace would pull some air through the pipe and supply the under part of the gas layer with oxygen. The result surpassed our expectations. The smoky flame was turned to pure white, such as we had never seen before. But, of course, in two reversals the pipe was melted.

Our other furnace was being rebuilt, and the necessary construction was installed to utilize this fundamental principle. On the previous run of this furnace oil was used for fuel. The furnace was built on the producer gas type of port. Water cooled burners were installed in the gas port. The end of the burners were well down in the gas port. The combustion not being good they were gradually pulled back. The combustion improved, but no sharp change took place until the burners were drawn back across the uptake. Then the flame immediately changed to one of intense heat; the bottom of the port melted and the rings of the arch began to drop down. The heats made this way were two hours shorter than when the burner rested on the port.

Lessons of the Experiments

From the above lessons and search after an efficient furnace the following principle was evolved and patented: A fuel to be burned efficiently and safely must be introduced into the furnace between an upper and a lower layer of preheated air, the upper layer being far larger in volume than the lower layer.

To utilize the principle plans were made for natural, producer and coke-oven gas, oil and tar. Let us take the open port type, Figs. 4, 5 and 6. This type with the above principle utilized can take oil, natural gas and cokeoven gas introduced through pipes B. The preheated air comes up uptake A, and over the fuel entering at BB. At the same time part of the air coming up A is by-passed through the passages A_1 and forms a layer of air underneath the gas. This was the construction used in the furnace we rebuilt.

The flame of the furnace is white, and the average time per heat is 4 hr., 2½ hr. faster than formerly. Heats have been made in 3 hr. and 20 min. with good stock and fast charging. These heats are all cold charges of 15 tons. The speed of these heats is due to two factors: 1, the excellent combustion of the fuel, and 2, the almost perfect control of the flame which sweeps from one port to the other clear of the roof and down on the bath. The heats contain 30 to 34 per cent. pig iron, and melt at about 0.40 per cent. carbon, with a manganese content of 25 to 30 points, showing that comparatively small oxidation takes place.

As has been stated the design can be used with fuels other than natural gas, as the complete combustion possible does not make it necessary to atomize liquid fuel. This will appeal to some operators, because the forced draught of oil and tar is sometimes attended with evil effects to the end walls and checkers.

However, for those who wish to use liquid fuel atomized, designs based on the principle enunciated are shown.

The fuel pipe in each case is introduced through a water cooled pipe, or a hollow pier needing no water cooled tuyere. The pipe passes through uptake A and terminates above, and not extending entirely across, uptake A_1 so that the fuel in this case is introduced beneath a layer of preheated air coming from A, and above a layer of preheated from uptake A_1. There is an arch over uptake A_1, which is helpful, as a more intimate mixture of air and fuel is obtained. The flame in this case is discharged immediately into the melting chamber, and the heat is taken up by the bath. No damage is done to the furnace port, and a separate protecting layer of air between the roof and flame is provided.

The arch over the uptake A_1 and the arch of the gas port in the producer gas type are so constructed that bricks of each ring are inclined away from the bath at a substantial angle. This simple construction will lengthen the life of the ports greatly, for gas port arches do not actually burn back; instead the rings of brick usually fall down. This is caused by expansion of the brick with a displacement of the center of gravity toward the bath.

The producer gas furnace, as has been stated, should embody the construction described in the arch of the gas port. This construction coupled with the principle of introducing the gas into the furnace between an upper layer

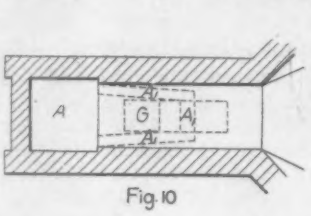


Fig. 10

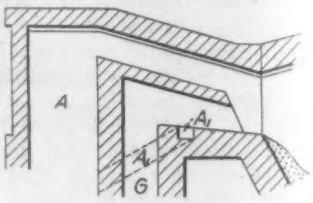


Fig. 11

Design for Open-Hearth Furnace Using Producer Gas

of air coming from uptakes AA and a lower layer of air coming from uptake A_1. Uptake A_1 is located between A and A, and terminates in the gas port. This construction will change the producer gas furnace from a comparatively slow process to a fast one. The smoky roll will disappear as it did in the natural gas furnace, and the layer of gas next to the bath will develop a high temperature where it is needed. If a producer gas furnace were built on the design of Figs. 10 and 11, the author believes that the control of gas would be secured together with quick and perfect control. The principle and designs are protected by letters patent.

Customs Decisions

Pantagraph Machines

The Board of United States General Appraisers has decided that "pantagraph machines" should be assessed for duty at 45 per cent ad valorem as "manufactures of metal not specially provided for." Charles A. Johnson & Co. had claimed that the machines were dutiable at 30 per cent. as "machine tools." These machines are used to trace designs on rollers used in calico printing. The tracing or drawing mechanism does not cut into the metal and therefore is not regarded by the board as within the meaning of the term "machine tools."

Nickel Bullets

The board has upheld the decision of the surveyor of the port of St. Louis in assessing "nickel bullets" with duty at 45 per cent ad valorem as "metal articles not specially provided for." The Great Western Smelting & Refining Company claims them dutiable as "nickel alloys," as "non-enumerated manufactured articles" or as free of duty as "old brass, copper or junk." The articles are metal projectiles which have been exploded or fired from a cartridge or shell and are so-called "spent bullets." They are composed of an alloy of copper, zinc and nickel and are melted into ingots and disposed of in that form as an alloy metal. The record showed that the alloy runs from 15 to 20 per cent of nickel and is not in the form of pigs, ingots, bars or sheets and therefore does not come within the provisions of paragraph 185 as contended by the protestant.

Automobile Forgings

A dispute between the customs authorities and the St. Louis Car Company dealing with the classification of steel blanks used in the manufacture of beveled gearing for automobiles or in the form of finished steel parts for magnetos, has been settled by the board adversely to the contention of the importer. The assessment was made on the unfinished metal forms at the rate of 35 per cent ad valorem as "steel forgings" and on the finished metal parts at 45 per cent as "manufactures of metal not specially provided for." The articles were claimed to be properly dutiable as castings under paragraphs 148 or 149 or at various other rates under the tariff act of 1897. The official sample was a steel blank used in the manufacture of a finished bevel gear and the records in the case do not warrant a conclusion other than to classify it as a "steel forging."

The Machinery Markets

All of the larger machinery centers continue to report trade conditions that are a cause of satisfaction despite the approach of the vacation season and the political agitation. Chicago in particular has good news, in that several railroads have been noteworthy purchasers of standard machine tools in the last week, the Atchison, Topeka & Santa Fe having come out with a third list, and other roads having appeared in the market. With a good number of miscellaneous sales and inquiries New York dealers say business is holding up well and that June will surely be a good month. Manufacturing in metal lines in New England is fairly prosperous and the activity of that section is reflected in increased freight transportation. Philadelphia has been quiet but is looking forward to good prospects. Improvement is noted in the Cleveland market, where single tool orders and inquiries have been more plentiful and some good prospects are seen in the automobile industry. Cincinnati is anticipating railroad buying; the domestic business is pleasing and the export trade is better than is usual at this season. Detroit shows an improvement, the demand coming mostly from the automobile trade, and sawmill machinery is active. Sales of single tools continue to predominate in St. Louis, while in the Central South demand for power equipment is the feature, although a little more life is felt in the machine tool trade. Business is steady in Birmingham, with mill supplies selling well. In Texas there is a steady demand for the smaller tools and equipment for cotton gins.

New York

NEW YORK, June 26, 1912.

It is already assured that June will be a good month with the New York machinery trade. The demand for standard equipment keeps up, and while orders are of a miscellaneous sort they total good figures. One or two dealers report a tendency in trade to taper off a little, which they regard as natural in view of the approach of the vacation season. At the same time it is admitted that new inquiries are fairly numerous and it is believed that when the Presidential nominations are out of the way greater activity is likely to come. This belief is held despite the fact that politics appear to have interfered little with trade so far. Forging machinery has been in good demand, particularly from the railroads, and inquiries have been made recently for a few tools by the Baldwin Locomotive Works. Several of the smaller industrial plants have been or are in the market and have contributed a large part of the activity.

The New York trade is greatly interested in the report that the splendid big plant of the Simms Magneto Company, at Bloomfield, N. J., which has been idle for several months is to be reopened in the near future and the making of the Simms magneto resumed. Capital associated with the Assets Realization Company, of 25 Broad street, New York, has acquired an interest in the property and arrangements have been entered by C. G. Stoddard and H. J. Edwards, of the Edwards Motor Car Company, to manage the operation of the plant. Messrs. Stoddard and Edwards have offices in the new building of the United States Rubber Company at Broadway and Fifty-eighth street, New York. The Simms plant is one of the most modern in the country. It is filled with machinery of the latest design, a part of which is said never to have been used. The plant and equipment is said to have cost in the neighborhood of $750,000 and lack of capital was the reason ascribed for its closing. It is said further that the Edwards Motor Car Company, which is headed by Messrs. Stoddard and Edwards, will locate permanently in the East, first renting and then erecting a factory for the manufacture of the Edwards car, which has been licensed to use the Knight sleeve valve motor. Very recently the company purchased the auto truck factory and the patents of the Longest Brothers Company, of Louisville, Ky., which, after years of experimenting, is understood to have evolved a satisfactory truck. Both the Longest trucks and the Edwards car, it is stated, will probably be manufactured in the same factory.

John F. Kelly, Post Office Building, Passaic, N. J., is taking bids for the erection of a new machine shop which will cost approximately $20,000.

The Elite Furniture Company, Jamestown, N. Y., recently incorporated, has had plans prepared for a factory 54 x 100 ft., four stories, of brick construction. The company is now in the market for a 125 to 150-hp. boiler and an engine.

The Excelsior Pulley Company, Cuba, N. Y., has been incorporated with $30,000 capital stock to manufacture pulleys, machinery, etc., and is arranging for a factory. The directors are S. M. Havens, A. R. Sutherland and H. H. Nivens, of Rochester.

The Morse Chain Company, Ithaca, N. Y., has let the contract for its new machine shop, 62 x 253 ft., to the Alexander Shumway & Utz Company.

The MacCordy Casting Machine Company, Fabius, N. Y., has been incorporated with a capital stock of $25,000 to manufacture casting machines and metals. The incorporators are C. A. MacCordy, J. A. McDonnell and E. L. Vezine, Syracuse, N. Y.

The American Woolen Company, Fulton, N. Y., has awarded a contract for the carrying out of the hydro-electric power development plan which has been under contemplation for some time, and which will cost approximately $300,000. Upon completion the company's mills will be entirely operated by electric power.

The Schühle Grape Juice Company, Highland, N. Y., is receiving bids for a two-story and basement addition, 36 x 93 ft., to be made to its plant, to be of reinforced concrete.

The Fort Stanwix Canning Company, Rome, N. Y., has been incorporated with a capital stock of $75,000, and will build and equip a plant for canning, pickling, etc. J. P. Olney, G. O. Bailey, Rome, and A. Wetingel, Fulton, N. Y., are the directors.

The Phœnix Hardware Mfg. Company, located at Homer, N. Y., for the past twenty years, and whose plant at that place was recently partially destroyed by fire, has been acquired by the North Buffalo Hardware Foundry Company, Buffalo, N. Y., which will move the machinery, patterns, etc., from Homer to its Buffalo plant.

The Johnston Harvester Company, Batavia, N. Y., has awarded contract for construction of two additional factory buildings, each 85 x 150 ft., four stories, of reinforced concrete, to the Alexander Shumway & Utz Company, of Rochester.

The Phœnix Horseshoe Company, Poughkeepsie, N. Y., has let contract for two factory buildings, 45 x 115 ft., one story, and 50 x 60 ft., one story, which it will erect on Livingston street.

F. Hart, Poughkeepsie, N. Y., is having plans prepared for a one-story machine shop, 60 x 150 ft., steel frame and concrete construction, which he will build at once.

The Dutchess Mfg. Company, Poughkeepsie, N. Y., will add to its plant at once a two-story and basement factory building, 36 x 92 ft., of brick and structural steel.

The Webster Basket Company, Webster, N. Y., has been incorporated with a capital stock of $50,000 by G. B. and E. Kittleberger, of that place, and will establish a plant for the manufacture of baskets, crates, etc.

The Pratt Chuck Company, Frankfort, N. Y., has plans in preparation by construction engineer W. G. Stone, Utica, N. Y., for five mill buildings to be used for the manufacture of hand farming implements. The buildings will be 60 x 846 ft., one story; 50 x 210 ft., two stories; 30 x 45 ft., one story; 25 x 50 ft., one story and 30 x 65 ft., one story. They will be of brick; mill construction.

Bids have been taken for a power house 64 x 64 ft., two stories, brick and steel, to be added to the plant of the Charles Freihofer Bakery, Troy, N. Y., to cost $10,000. Charles Freihofer, proprietor, Twenty-fourth and Master streets, Philadelphia.

Plans have been completed for the plant of the

Chase Motor Company to be erected at Syracuse, N. Y. The buildings will be of steel frame construction.

The Frontier Box & Mfg. Company, Lockport, N. Y., has purchased a site of three acres at Prospect street and the Erie railroad, and will at once build thereon a plant for the manufacture of a patent packing case. James Cochran, president of the Niagara Cotton Batting Company, is at the head of the new company.

The Julius Kayser Company, Amsterdam, N. Y., is completing arrangements for the construction of an addition to its power plant and the installation of additional equipment.

The Dunkirk Brick & Tile Company, Dunkirk, N. Y., has been incorporated and will build and equip a plant for the manufacture of brick and other clay products. The incorporators are R. W. Wright, W. E. Hilton and S. M. Hamilton, Buffalo. The capital stock of the company is $30,000.

Revised bids are being received by Cornell University (E. L. Williams, treasurer) for construction of a central heating plant for the New York State College of Agriculture, Ithaca, from plans of Architects Green & Wicks, Buffalo. All bids received for this work June 7 were rejected.

The city of Buffalo, N. Y., will build a power plant and forge shop in connection with the Vocational School building now being erected on Peckham street.

The Automobile Vehicle Corporation, Buffalo, N. Y., has been incorporated with a capital stock of $20,000 to manufacture motor cars. Plans for a plant are under way. The directors are L. A. Kenyon, Frank H. O'Neill, Otto A. Hegelm and James C. Fox.

Plans have been completed for an addition 60 x 135 ft., one story, which the Jewell Steel & Malleable Company, Buffalo, will make this summer to its foundry plant.

The Lackawanna Bridge Company, Buffalo, has received the general contract for the erection of the four buildings to be added to the Pierce plant of the American Radiator Company—a foundry and cupola building, a machine shop, a carpenter shop and a warehouse—all to be of structural steel, brick and concrete, and to cost $80,000.

The addition to be made to the plant of the Crosby Company, Buffalo, manufacturer of automobile frames and stamped metal goods, will be 125 x 180 ft., four stories and basement, of steel frame construction.

The Manzel Bros. Company, Buffalo, manufacturer of auto oil pumps, is building a one-story brick addition to its plant at Babcock street and the Pennsylvania railroad.

The Maiwurm Aluminum Works, Erie, Pa., has been incorporated by Paul Maiwurm, Julius E. Curtze and Dale Maiwurm. It will equip a plant for the manufacture of kitchen utensils and other articles made from aluminum.

The Buffalo Sheet Metal Works, 700 D. S. Morgan Building, Buffalo, has been incorporated to manufacture and deal in heating and ventilating systems. The incorporators are Eldon R. Fillmore, Milton L. Fish and Philip A. Laing.

New England

BOSTON, MASS., June 25, 1912.

Manufacturing in New England in metal lines is normally prosperous. Conditions in Bridgeport, Conn., are significant of the situation. The city has widely varied metal industries, ranging from the production of raw materials to the highest grades of machine tools. Practically all of the manufacturers are prosperous, a large proportion of them beyond the average.

The poltical situation, with all its apparent chaos, seems to be no disturbing factor in manufacturing business. New England railroads find that June shows a sharp increase in freight carried as compared with May, and the business lull which comes with the mid-year inventory period and the warm weather is slow to assert itself.

The Board of Contract, Hartford, Conn., will receive bids until July 8 for furnishing and installing pumping equipment.

F. H. Sleeper, 12 Shafner street, Worcester, Mass., has established a business for the manufacture of automatic machinery for producing springs and wire forms. He is making specialties of a machine for producing helical springs, and of one, known as a universal coiler, which coils and cuts open flat-end springs, straight, taper or barrel shaped, right or left hand, the standard type handling wire No. 20 to No. 10, forming springs from ¼ to 2 in. diameter, while other sizes of machine give a scope of from No. 25 to ½ in. wire.

The Simonds File Company, Fitchburg, Mass., a subsidiary of the Simonds Mfg. Company of that city, states that it is impossible to give a list of equipment requirements for the new hardening room because practically all of the machinery to be installed will be special. The building will be 52 x 120 ft., one story.

The Blakeslee Drop Forging Company, Southington, Conn., manufacturer of drop forgings and carriage hardware, states that the only new equipment which will be purchased at this time in connection with the new forge shop and machine shop will be a 2000 lb. Billings & Spencer hammer, and a No. 6 Waterbury-Farrel hot trimming press, orders for which have been placed.

Potter & Snell, Deep River, Conn., manufacturer of wire specialties, will build a machine shop, 41 x 150 ft., one story. The company will require electrical equipment of about 20 hp. with shafting hangers.

Winslow H. Robinson, Worcester, Mass., manufacturer of sheet metal work, will erect a factory on Prescott street, 56 x 162 ft., three stories and basement. The two upper floors will be rented for manufacturing purposes.

The consolidation of the business of the E. Horton & Son Company and the S. E. Horton Machine Company, Windsor Locks, Conn., manufacturers of chucks, has been effected in a new corporation bearing the same name as the E. Horton & Son Company. S. E. Horton, Windsor Locks, is the president and treasurer, E. E. Bell, Windsor Locks, secretary, and the directors consist of these officers and E. D. Redfield and Warren D. Chose, Hartford, and William F. McCarthy, Boston. The passing of the control of the old established business of the E. Horton & Son Company from E. B. Bailey to the Horton family has been noted.

The new factory which the J. N. Lapointe Machine Company, Marlboro, Mass., will erect at New London, Conn., will be 48 x 132 ft., with an ell 38 x 52 ft., of brick and steel, with concrete foundations and floor. The company builds broaching and other machine tools.

The Gray Pay-Station Telephone Company will erect a factory at Hartford, Conn., 50 x 200 ft., four stories, on land just purchased on Hawthorne street, west of the new Chamber of Commerce industrial building. Charles Soby, 855 Main street, Hartford, is secretary and treasurer of the company.

Philadelphia

PHILADELPHIA, PA., June 25, 1912.

While quiet conditions have prevailed in nearly all lines, a few odd purchases of equipment of both the standard and special types are reported, further orders have been closed against pending lists, and one or more new propositions of fair size are in sight, one in particular being expected to develop at an early date. Inquiry from the railroads in this district has been light, although some fair general sales are reported at the Car Builders' and Master Mechanics' convention exhibit at Atlantic City, to which the trade continued to give considerable attention during the greater part of the week. Machine tool builders' plant activity still shows irregularity in this district. Some note slight betterment, but in few cases, except on the part of the smaller plants, has anything like normal operations been reached.

Second-hand machinery, boiler and engine dealers report a trifle better volume of miscellaneous business, although in no particular line has there been any marked activity. Power equipment, particularly that of moderate capacity, continues in fair demand. Very little business for export is reported by tool builders. A fair movement in power transmission specialties is however noted. Steel casting plants continue active and in instances have reached the point where further contracts are refused. Gray iron foundries are somewhat better engaged, but generally operations are still below normal.

Blumenthal Brothers, 1313 North Second street, manufacturers of chocolate and cocoa, are having plans prepared for a group of new factory buildings to be erected at Margaret and James streets. The contracts are expected to be placed in the early fall, and will include power equipment and necessary special machinery.

Day & Zimmerman, engineers, are planning a group of buildings for the Gurney Electric Elevator Company, Honesdale, Pa., where a four and one-half acre tract of land has been acquired and on which will be erected a woodworking mill, 50 x 210 ft.; a heavy

machine shop, 50 x 210 ft.; a light machine shop, 60 x 210 ft.; a foundry and cleaning building, 80 x 150 ft., and a pattern and storage building, 25 x 75 ft. All the buildings are to be one story. The matter of equipment for the various shops is now under consideration and it is expected that the engineers will issue a list and take bids in the near future. The same engineers have a contract from the Barnard & Leas Mfg. Company, Moline, Ill., manufacturer of flour and rice mill machinery, for a group of buildings including woodworking, machine shop, erection and storage buildings. The plant of this company was destroyed by fire last winter and it is now occupying temporary quarters.

Local contractors are estimating on a factory building to be erected in Tacony, Philadelphia, for the Pennsylvania Unit Brick & Tile Company. Karl Garthwaite Smith, Newark, N. J., is the engineer.

The Quakertown Knitting Mills Company, Quakertown, Pa., has secured its charter and is about ready to begin the erection of a 30 x 150 ft. building. The incorporators named are Edward O. Correll, C. Kaffke and O. Paul Kaffke.

Mershon Brothers are planning to erect at Filbert and Hutchinson streets an eight-story fireproof building, 60 x 140 ft., for general mercantile uses. The building is to be supplied with three elevators.

The Hoffman Engineering & Contracting Company has begun work on the two-story machine shop, 140 x 458 ft., to be erected on Richmond street south of Norris street, for the William Cramp & Sons Ship & Engine Building Company.

The Keystone Type Foundry Company is considering the doubling of its plant at Fourth and Engle streets, Chester, Pa. This plant was erected about a year ago and is used for the manufacture of steel cabinets and printers' furniture and equipment. Details are not yet available.

The Baldwin Locomotive Works is quite busy. Late in February it had approximately 6800 men on its payroll at the Philadelphia and Eddystone plants. It now has a total of 13,275 employees. Orders actually in hand are sufficient to keep this force employed at full capacity for four or five months. Its new erecting shop at the Eddystone plant is 75 per cent. completed and one-half of the new addition is already in use. A good volume of inquiries for locomotives is reported. Orders have recently been booked for 19 Pacific type engines for the Grand Trunk Railway and five 10 wheel engines for the New Jersey Central, together with numerous orders for single engines, as well as orders for two and three from various industrial concerns.

Hale & Kilburn will erect a steel frame factory building, 90 x 279 ft., and five stories with concrete floors, entirely fireproof. It will be equipped with traveling cranes, wired for light and power, and will have vacuum system of steam heating, wood block floors, electric elevators, special machinery, oil furnaces, baking ovens, etc. Averill & Adams, 719 Union Trust Building, Washington, D. C., are the architects and engineers. Bids will soon be asked for covering the general contract for the construction of the building.

Bids will be received until July 9 by F. Roland, Jr., secretary of the Reading school district, Administration Building, Reading, Pa., for machinery for the machine shop of the manual training department, the following equipment being specified: Three 12-in. standard screw cutting lathes and one 14-in. standard screw cutting lathe, these to be LeBlond or equal; one 24 x 24-in. x 8-ft. standard planer, Powell or equal quality.

Cincinnati

CINCINNATI, OHIO, June 25, 1912.

The export business is unusually good for the season. Domestic business done during June promises to be especially satisfactory, and the feeling seems to prevail that the election situation has been discounted by the machinery trade in general. Active buying on the part of the railroads in other directions is taken as an indication that the long deferred purchases of machine tools will shortly be made by the railroads in this section. In fact, some few inquiries have appeared, calling for scattered assortment of machinery and supplies, and it is hoped that this is the forerunner of some substantial business. On the other hand, the call for used machinery is not as good as it has been. However, good prices are being obtained for this class of equipment.

The Cincinnati machine tool builders are very much interested in the Oldfield patent bill, and the following Patent Law Committee has been appointed by the Business Men's Club to investigate the matter: W. R. Wood, J. R. Doan, William Lodge, R. K. LeBlond, James Hobart, Fred A. Geier and George M. Verity.

A large class of students from the Biltmore School of Forestry, Biltmore, N. C., made an inspection of the plant of the J. A. Fay & Eagan Company, Cincinnati, June 19, after which they went to Hamilton where other plants were visited, including that of the Niles Tool Works.

The Graves & Marshall Company, Dayton, Ohio, is a new incorporation with $20,000 capital stock, to manufacture and sell boilers, tanks and structural steel. George L. Marshall and Henry C. Graves are among the principal incorporators named.

Plans for the new plant of the Brown Fence Company, to be erected at Oakley, Ohio, are well under way, and work will probably commence at an early date.

It is reported that the Ceramic Machinery Company, Hamilton, Ohio, has commenced work on a one-story brick and steel factory building. F. G. Mueller, Rentschler Building, drew up the plans for the building.

It is quite probable that the Cincinnati Precision Lathe Company will soon have to make a further extension to its newly completed plant in Mt. Washington suburb.

The Triumph Electric Company, Oakley-Cincinnati, was the successful bidder for the power and lighting equipment necessary for the 28-story office building now under construction in Cincinnati, for the Union Central Life Insurance Company.

The addition to the Modern Foundry Company's plant at Oakley, recently mentioned, is nearly completed, and is expected to be ready for occupancy within the next 30 days.

The American Rolling Mill Company, Middletown, Ohio, is building an addition to its new plant 100 x 187 ft., and of steel construction throughout. The new building will be used exclusively as the finishing department for high grade material.

Elzner & Anderson, Johnston Building, Cincinnati, are receiving bids for the construction of a nine-story building to be erected in Cincinnati for the Crane-Hawley Company. Considerable structural material will be required for the new structure.

The Virginia & Carolina Chemical Company will soon have its large fertilizer plant ready to house the necessary machinery. It has acquired an additional site adjoining its property in St. Barnard suburb, on which will be constructed several more manufacturing buildings.

Cleveland

CLEVELAND, OHIO, June 25, 1912.

The machinery market has improved. Single tool orders have been more plentiful and there is a better volume of inquiries than there has been for some time. Second hand machinery tools are moving quite freely, being in better demand than new machinery. Two local manufacturers have come out with inquiries for additional machinery equipment, each of these being for several tools. Two new Ohio companies that will engage in the manufacture of automobiles have made some preliminary inquiries for machinery equipment and are expected to be in the market within the next 60 days with lists of machine tools amounting to from $50,000 to $100,000 each. One of these companies has been operating a small plant for experimental purposes. Local manufacturers are generally quite busy. The automobile industry continues in a very satisfactory condition and most plants engaged in the manufacture of automobile parts are crowded with work.

The Hydraulic Pressed Steel Company, Cleveland, Ohio, will shortly add to its present products, which are mainly automobile frames, the manufacture of one piece steel barrels. The company will shortly install a very large Bliss drawing press designed specially for this work.

The Ferro Machine & Foundry Company, Cleveland, Ohio, has about completed an addition to its foundry 90 x 300 ft., two stories and basement. This building is designed to add additional stories later. The company this week commenced the erection of a three story addition to its machine shop 160 x 270 ft. This building has been planned with a view of adding three additional stories later. It will be of reinforced concrete construction.

The Automatic Sprinkler Company of America has commenced the erection of a large plant in Youngstown, Ohio, in which manufacturing now done in Akron, Ohio, Philadelphia and Syracuse, N. Y., will be consolidated. The plant will be a one story structure of brick, steel and concrete, 235 x 400 ft., with metal win-

dow sash and a monitor roof. It has not been decided yet whether a power plant will be provided. Some new machinery will be required. Walker & Weeks, Cleveland, are the architects.

The Toledo Cooker Company, Toledo, Ohio, will double the capacity of its plant by the erection of a two-story brick addition 51 x 70 ft.

The Council of Galion, Ohio, has passed an ordinance to issue $15,000 worth of bonds for the purpose of extending and improving the municipal electric lighting plant.

A new plant for the manufacture of automobile trucks is to be established in Lima, Ohio. Max Bernstein and B. A. Gramm have secured a building, formerly owned by the American Strawboard Company, and this will be remodeled for the manufacture of commercial trucks.

The Geneva Metal Wheel Company, Geneva, Ohio, will shortly commence the erection of a new building that will double the capacity of its present plant. Preliminary plans provide for a structure 100 x 195 ft.

The Lima Locomotive & Machine Company, Lima, Ohio, which is planning large factory extensions, has completed plans for new buildings for which contracts will be let in a short time. These will include an erecting shop 140 x 360 ft.; blacksmith shop, 80 x 260 ft.; hammer shop, 80 x 260 ft. and tank shop, 80 x 260 ft.

The Wilson-Morgan Cement Block Company, Galion, Ohio, will shortly begin the erection of a new factory building.

The Dayton Body Company, Dayton, Ohio, has purchased a building site upon which a new factory will be erected for the manufacture of automobile bodies.

The Zerk Mfg. Company, Cleveland, Ohio, maker of automobile parts, will purchase some new drilling machines and other machine tool equipment.

The Gripclaw Hammer Company, Cleveland, has been incorporated with a capital stock of $10,000 by Donald McBride and others.

The Packard Electric Company, Warren, Ohio, has placed a contract for the erection of a two story factory building.

The Buckeye Aluminum Company, Wooster, Ohio, is planning to build an addition to greatly increase the capacity of its plant.

Lima, Ohio, will vote on a bond issue of $300,000 for the extension of its waterworks system and other improvements.

Preston, Wayne County, Ohio, is planning the installation of a waterworks system.

Chicago

CHICAGO, ILL., June 25, 1912.

The feature of the past week in the machinery trade has been the buying of standard machine tools by the railroads very generally. The Atchison, Topeka & Santa Fé, which has already asked for figures on two lists, is now in the market for a third lot of machines. The Chicago, Milwaukee & St. Paul is about to buy tools, consisting of lathes, shapers and drills, amounting in value to about $10,000. The Grand Trunk is in the market for a desirable aggregate of machines, the Michigan Central has issued a small list and the Chicago, Burlington & Quincy will buy several individual machines. The closing of a number of miscellaneous orders during the week developed a total of considerable proportions at the same time leaving quite as large a number of promising inquiries unplaced.

The Model Gas Engine Company, Peru, Ill., is about to enter the market for equipment for its eastern shop about to be built.

The Wisconsin Motor Company, Milwaukee, Wis., is inquiring for a limited amount of new shop tools.

The Dryden Hoof Pad Company, South Forty-third avenue, Chicago, has taken out a permit for the building of a one-story machine shop to cost $3,500.

The American Book Company, Chicago, has taken out a permit for a factory 99 x 179 ft., five stories of brick, to be erected at a cost of $100,000.

The Crane Company, Chicago, has taken out a permit for the erection of a twelve-story office building on Michigan boulevard to cost $250,000. This company has also purchased additional property adjoining its west side plant to provide for extensions.

William Sheriffs, Chicago, has been issued a permit for the erection of a four-story brick factory 50 x 70 ft., at 208 South Jefferson street. The building will cost $34,000.

Raike & Healy, Chicago, will build a factory 50 x 125 ft., six stories, at 1401 Jackson boulevard, the cost of which is estimated at $70,000.

J. B. Chubb, 32 North Clark street, Chicago, is the architect for a high school building to be erected at Boone, Iowa, at a cost of $110,000 and which will include a complete manual training department.

The Hanke Iron & Wire Works, Chicago, through Jenney, Mundie & Jensen, architects, are taking figures covering the building of a one and two-story factory building 99 x 240 ft.

The Elgin, Joliet & Eastern Railway, A Montsheimer, chief engineer, is taking figures for a two-story locomotive shop 149 x 440 ft., at Joliet, Ill.

Barnard & Leas, Moline, Ill., are having plans prepared for the building of an additional factory building to be 200 x 300 ft. and estimated to cost $90,000.

The Harman Engineering Company, Peoria, Ill., is preparing plans for the drainage systems at Oquawka, Ill., involving two pumping stations the estimated cost of which will be $35,000 and $50,000 respectively.

C. M. Fox, De Kalb, Ill., is taking figures for a 1500 gal. pump to operate against a pressure of 125 lb.

The Pike Gate Company, Pittsfield, Ill., has under way the construction of a new factory to provide increased manufacturing facilities.

C. W. Birchwood, Chicago, is perfecting plans for the building of a plant at Jacksonville, Fla., for the manufacture of automobile accessories. A shop 30 x 100 ft. will be built and automatic machinery will be installed. The cost of the equipment is estimated at $25,000.

The Mesaba Boiler & Mfg. Company, Duluth, Minn., is installing new power equipment which will double the capacity of the plant and for which an additional building is being erected.

The Illinois Central Railroad is taking figures for the building of new railroad shops at Centralia, Ill.

The Great Northern Railway has made arrangements as the result of which division shops will be built at Lewiston, Mont.

The Minneapolis Threshing Machine Company, Hopkins, Minn., is about to erect an addition to its plant of sufficient size to double the capacity.

At Logan, Iowa, a bond issue of $20,000 has been authorized for the purpose of improving the waterworks system.

H. W. Huttig, Muscatine, Iowa, has made arrangements for the location of a button factory at Lyons, Iowa, and plans have been prepared for the erection of a factory building, 40 x 100 ft.

The Farmers' Tractor Company, Minneapolis, Minn., has contracted to build a factory 100 x 200 ft., near Waterloo, Iowa, and operate under the name of the Waterloo Gas Tractor Company. An expenditure of $45,000 for buildings and equipment is planned.

The Light Draft Harrow Company, Marshalltown, Iowa, is building a new factory 50 x 150 ft., one story, for which new machinery and equipment will be purchased.

The Continental Brick Company is building a brick-making factory at Aledo, Iowa, where 11 kilns will be operated. The company's capital stock is $100,000.

Detroit

DETROIT, MICH., June 25, 1912.

Business is improving and a generally satisfactory state of trade is reported by machinery merchants. The Diamond Mfg. Company, whose plant was recently burned, has purchased an extensive list of tools to replace the equipment destroyed and several automobile and auto part manufacturers have made purchases of two or three tools. A good aggregate of orders for woodworking equipment is reported and sawmill machinery is in active demand. There is a fair inquiry for heavy handling equipment and electrical machinery. Makers of jigs and dies have a large amount of business on their books. The second-hand machinery is somewhat spotty, but the outlook is favorable as a very fair amount of inquiry is pending. Steel castings plants are better engaged, and while gray iron foundries have not increased their operations materially some of them report better bookings. Building circles are quite active and equipment identified with construction work, fire doors, elevators, heating and ventilating equipment, as well as contractors' tools are in good demand.

The Charles A. Strelinger Company, Detroit, dealer in machinery, tools and shop supplies, has added a complete line of woodworking equipment to its business. The company will handle the products of the H. B. Smith Company, Smithville, N. J. Business is reported to be very satisfactory and the company is inclined to be optimistic over the outlook for a heavy fall trade.

The Detroit Fuse & Mfg. Company, Detroit, manufacturer of electrical specialties, has awarded contracts for the erection of a new factory building on Rivard, near Harper avenue. The new structure will be 54 x 110 ft., two stories and of reinforced concrete construction.

The Detroit City Gas Company has begun the construction of large additions to its substations A and B on the east and west sides, respectively.

The National Supply Company, Detroit, has been incorporated with $25,000 capital stock to manufacture and deal in a patented roofing material and other building supplies. The incorporators are William McLennan and Charles L. Phelps, Detroit, and Alton G. Ensign, North Tonawanda, N. Y.

The Michigan Railroad Commission has authorized the incorporation of the Independent Power Company with $200,000 capital stock. The company will manufacture electricity for heating, lighting and power purposes and it is understood that the several power projects in the southeastern part of the state will be developed. The incorporators are Fred H. Aldrich, Alfred W. Watson and George W. Eyster, all of Detroit.

The Rochester Sand Company, Detroit, has been incorporated with $60,000 capital stock to operate sand and gravel pits. William Malow is the principal stockholder.

The Ford Motor Company, Detroit, is having plans prepared for an extensive addition to its branch plant at Walkerville, across the river from this city. The plans call for a structure 75 x 510 ft., four stories, and it will be equipped for general automobile manufacturing.

The Jack-O-Lantern Novelty Company, Detroit, has been incorporated with $5,000 capital stock to manufacture various specialties. Albert M. Draper is the principal stockholder.

The Star Carburetor Company, 685 East Atwater street, Detroit, manufacturer of auto parts, is extending its facilities and has added a brass and aluminum foundry and a machine shop to its plant. The company reports a good volume of business in sight for its new departments.

The Keeton Motor Company, Detroit, automobile manufacturer, has increased its capital stock from $10,000 to $300,000.

The Diamond Mfg. Company, whose plant was recently destroyed by fire, has secured a part of the factory of the Ideal Mfg. Company on Franklin street and will occupy it as temporary quarters until its new plant, now building, can be completed. An entire outfit of new machinery has been installed.

The plant of the Reynolds Asphalt Shingle Company, Grand Rapids, Mich., was destroyed by fire June 16, entailing a loss of $30,000. The company recently acquired a site for a new plant which will now be immediately erected. The plans call for a building 60 x 256 ft., two stories and of mill construction. A large part of the machinery is of special design and an order for its construction has been placed with the Lytle Iron Works, Grand Rapids.

The village of Highland Park, Mich., at a special election June 15, voted in favor of bonding for $49,500 for water-works extensions.

The plant of the defunct Corl Piano Company, at Battle Creek, Mich., has been purchased by the Castle Lamp Company, now located at Amesbury, Mass., and the entire business will be moved to Battle Creek. The company manufactures automobile lamps and the new plant will admit of a considerable expansion of its facilities.

The Michigan Central Railroad has awarded contracts for the erection of extensive machine shops and a round house at Kalamazoo, Mich.

The East Jordan Clay Products Company, East Jordan, Mich., has been incorporated with a capital stock of $25,000 to take over the business of the Price Bros. Brick Company. A considerable amount of new machinery will be installed. H. S. Price is president of the new company.

Charles F. Sawn, Mt. Clemens, Mich., is at the head of a new organization which has been formed to manufacture threshing machines. It is stated that the company will immediately erect and equip a large factory in the vicinity of Mt. Clemens.

The taxpayers of Elkton, Mich., have voted in favor of bonding for $6,000 for the installation of a municipal electric lighting plant.

The Upjohn Pill & Granule Company, Kalamazoo, Mich., has begun the construction of a three-story brick addition to its plant.

The Michigan Railroad Commission has authorized the Centerville Water & Electric Light Company, Centerville, Mich., to increase its capital stock from $10,000 to $85,000. It is stated that the increase is for the purpose of extending the company's power lines and enlarging its plant.

The McDermott Machinery & Foundry Company, Iron River, Mich., has been incorporated with a capital stock of $25,000. It will do a foundry and machine shop business.

The Alma Roller Mills Company, Alma, Mich., is remodeling its mill and will expend about $5,000 in the purchase of new flour milling machinery. William Medlar is superintendent.

The Board of Trustees of Olivet College, Olivet, Mich., has appropriated $50,000 for the erection and equipment of a central heating plant at the college.

It is currently reported that the Mott Wheel Company, Rochester, N. Y., will build a branch plant at Jackson, Mich., with a capacity of 200,000 automobile rims annually.

The Esley Light & Power Company, Plainwell, Mich., is considering plans for extending and enlarging the facilities of its plant.

The Bay City Iron Company, Bay City, Mich., has increased its capital stock from $21,100 to $35,000.

Charles H. Stanley, Millington, Mich., proposes to establish a sawmill and flooring plant at Millersburg, Mich.

The American Top Company, Jackson, Mich., manufacturer of auto tops, has merged its business into a stock company under the same style with a capital stock of $350,000. The company is considering an enlargement of its plant.

The Treplex Mfg. Company, Muskegon, Mich., has been incorporated with $25,000 capital stock. The new company will manufacture a line of hardware specialties.

Dahm & Kiefer, tanners, Grand Rapids, Mich., are preparing to erect an addition to their plant. The new building will be 46 x 70 ft., two stories and basement. Some additional equipment will probably be required.

Jackson & Tindle, Pellston, Mich., whose heading plant was destroyed by fire some time ago, have commenced the construction of a new mill to take the place of the burned structure.

The Petoskey Block & Mfg. Company, Petoskey, Mich., is rebuilding its manufacturing plant and rearranging its machinery with the installation of considerable new equipment.

The city of Holland, Mich., is to build a high school to cost $100,000 and to be provided with complete manual training equipment.

The Wilson Saw & Mfg. Company, Port Huron, Mich., recently mentioned as having had plans prepared for a new building, states that it is unable at this time to give definite information as to its machinery requirements, except that it contemplates putting up a strictly modern factory which will be equipped with all modern conveniences for the manufacture of saws, etc.

Indianapolis

INDIANAPOLIS, IND., June 25, 1912.

The Indianapolis Gas Company will erect a new coke and gas manufacturing plant. It will have a daily capacity of 6,000,000 cu. ft. of gas. Forty-one coke ovens will be built. The Semet Solvay by-product system will be used. Brick and steel will be used in the general construction.

The Wyman Mfg. Company, Indianapolis, has been incorporated with $3,000 capital stock, to manufacture farm gates and machinery. The directors are O. J. Wyman, W. F. Johnson and C. S. Sweeney.

The Gypsum Tile & Plaster Company, Indianapolis, has been incorporated with $35,000 capital stock, to manufacture building tile and plaster. The directors are H. H. Pierce, C. F. Pierce and H. H. Dupont.

The Gould Coal Washing & Mining Company, Sullivan, Ind., has been incorporated, with $10,000 capital stock, to own and operate coal mines. The directors are M. L. Gould, W. T. Wyman and F. E. Nichol.

The Gemacko Mfg. Company, Indianapolis, has been incorporated with $10,000 capital stock, to manufacture machinery, especially for cleaning clothing, carpets and furnishings. The directors are Charles R. Wilson, Frank C. Olive and Louis A. VonStaden.

The Gary Semi-Steel & Foundry Company, Gary, Ind., has been incorporated with $30,000 capital stock, to operate foundry and machine shops. The directors are W. A. Cain, P. J. McGaffery, C. Rice, Timothy Holland and O. S. McGinnity.

The Indiana Machine & Wire Company, Indianapolis, has been organized with a capital stock of $30,000 and will manufacture fence machinery. The directors are F. H. Irwin and M. F. Cox.

The United Light & Railways Company, incorporated under the laws of Maine, has taken over the LaPorte Electric Company, LaPorte, Ind. Wm. A. Martin, LaPorte, is president of the latter company.

The G. & J. Tire Company, Indianapolis, will erect a five-story, fireproof factory building 170 x 220 ft., to cost about $100,000.

The Clark Motor Car Company, Shelbyville, Ind., which was closed down three months on account of bankruptcy proceedings, has resumed operations under the management of Arthur Woodard, secretary of the company.

The Rose City Mfg. Company, Newcastle, Ind., has been incorporated with $50,000 capital stock, to manufacture tools and implements. The directors are J. A. Johnson, E. R. Sissons, C. S. Newby, F. B. Moore and E. M. Board.

The Standard Cart Company, Aurora, Ind., has been incorporated with $10,000 capital stock, to manufacture carts and vehicles. The directors are H. H. Nelson, W. B. Timberlake and O. A. Timberlake.

The Northern Indiana Welding Company, Hammond, Ind., has been organized to do a welding business. The directors are George Chilton, E. Junk and W. E. Roe.

The Hull Mfg. Company, Valparaiso, Ind., has been incorporated with $25,000 capital stock, to manufacture steel and wood products. The directors are A. L. Hull, Mendel Lowenstein and H. R. Curran.

The Miko Machinery & Supply Company, Muncie, Ind., has been incorporated to deal in machinery and supplies. The directors are Carl D. Fisher, J. M. Heron and J. B. Bannister.

George H. Bishop & Co., Lawrenceburg, Ind., saw and edge tool manufacturers, have contracted for an enlargement to the plant to cost $20,000.

The Feeny-Hurd Company, Muncie, Ind., has been incorporated with $20,000 capital stock, to manufacture a universal joint. The directors are E. J. Feeny, C. E. Hurd and T. D. Robson.

The Central South

LOUISVILLE, KY., June 25, 1912.

A decided improvement has made itself felt in this market the past week in the demand for power equipment, and as noted recently this is making up for the falling off in the call for special machinery. The renewed interest in boilers, engines, motors and other similar machinery came after a decided lull in that department of the trade, and was consequently welcomed. Machine tools are also showing more life than for some time, and dealers report that they have received a larger number of inquiries both from new enterprises and old than they have handled in some time. This is not a particularly large machine tool consuming center, so that the improvement in the demand is noteworthy.

The Kentucky Tobacco Product Company, Ninth and York streets, Louisville, is erecting a building which will be used for a machine shop. The equipment is to be bought at once.

The firm of House & Fieldhouse has been formed and will open a machine shop on Third street, north of Main, in Louisville. Mr. Fieldhouse is engineer for the Washburn-Crosby Milling Company's plant in Louisville.

The Kentucky Gear & Machine Works, Ninth and Jefferson streets, Louisville, has sold out to a new corporation known as the Swinging Joint Company. It will make a patented flexible steam joint, and will be incorporated with $75,000 capital stock. G. Binder, who has operated the plant heretofore, will be general manager of the new company. The old lines of metal saws, gears and paint mills will be continued. The officers of the company will be Theodore Shoptaw, president, and W. F. Decker, secretary and treasurer. Additional machinery to be added at once includes three lathes, a radial drill and four drill presses, in addition to some band-saws for pattern-making purposes. The same building will be used for a time, but later it is expected that a larger site will be secured and a new plant erected.

It is reported that the Richardson Paranaplane Company, Dayton, Ohio, which has a patented trolley wheel, is considering the establishment of a plant for its manufacture in Louisville. The old factory of the Alvey-Ferguson Company, of Cincinnati, located at Floyd and A streets, may be secured. W. J. Richardson is the chief owner of the company, Brooks Geoghehan being the local representative.

The Moran Flexible Steam Joint Company, 115 North Third street, Louisville, is in the market for a No. 2 universal Cincinnati milling machine. A used machine is preferred. Address E. B. Jenkins.

The Louisville Paper Company, which was recently burned out, has located in another building at Thirteenth and Maple streets. It purchased new equipment, including cutting machines, which are operated by motors installed by the James Clark., Jr., Electric Company of Louisville.

Bids on the 15-story office building of John P. Starks, to be erected at Fourth and Walnut streets, Louisville, will be received about July 10, according to McDonald & Dodd, local architects. D. H. Burnham & Co., Chicago, are the designing architects and will also receive bids.

The Empire Wire & Iron Works, Louisville, has moved its plant to 1553 East Washington street. It has provided for the operation of all its machinery by electric motors. Light wire and iron work is specialized in.

The Abell Elevator Company, Louisville, has been awarded a contract for the installation of two large freight elevators in the new power-house of the Louisville Railway Company.

A. J. Baker and J. H. Mays have begun the erection of a flour mill at Marion, Ky. Conveying machinery will probably be needed, as an elevator of considerable capacity is included in the plans.

George Bentley, Hawesville, Ky., is planning the installation of a flour and corn meal milling plant. Work will be begun in the immediate future.

The Diamond Coal Company, Providence, Ky., will enlarge its power plant. An air compressor, in addition to two boilers, will be installed. Palmer Bros. are the operators of the mine.

The Hardy Buggy Company, Paducah, Ky., has announced that its factory, which was recently burned, will be rebuilt. W. T. Hardy is president of the company.

The Shelby Loose Leaf Warehouse Company, Shelbyville, Ky., is building an addition to its plant. Presses for prizing leaf tobacco will be needed.

Taylorsville, Ky., is considering the establishment of an electric light plant.

The Racine, Wis., Lumber Company has plans for the construction of a large planing mill at Eddyville, Ky. A site has already been secured.

Allen Williams, Eddyville, Ky., has announced plans for the construction of a large grain elevator.

The Marion Electric Light & Ice Company, Marion, Ky., has completed plans for the installation of additional machinery, and is contemplating the immediate purchase of the equipment. S. M. Jenkins is president of the company.

James Z. George, Memphis, Tenn., has purchased the plant of the Halls Light, Water & Ice Company, Halls, Tenn., and improvements in all of the departments will be made. A larger generator and dynamo will be installed in the lighting plant, new mains will be laid for the water system and the capacity of the ice plant will be increased.

Charles L. Morris, Morristown, Tenn., has organized the East Tennessee Lumber & Development Company, with a capital stock of $300,000 and will erect several large sawmills in Greene and Hawkins counties.

B. F. Parker, Limestone, Tenn., is in the market for additional machinery to be installed in his flour mill.

The Tennessee Power Company, which is operating several hydroelectric plants in eastern Tennessee, has purchased the plant of the Greeneville Electric Company, Greeneville, Tenn., and will erect a water power plant on the Nolachucky River, six miles south of Greeneville. Current will be transmitted to Greeneville, Newport, Morristown, Jonesboro and other cities in that vicinity. The estimated cost of the plant is $500,000.

Plans for the immediate beginning of development work on the Clinch and Powell rivers are being made by the Tennessee Hydro-electric Company, which was organized a few months ago. Among stockholders of the company is J. S. Kuhn, Pittsburgh, Pa., who is interested in many public utility concerns in other parts of the country. The main dam to be built by the company will be at Kingston, Tenn., on the Clinch River.

The Columbia Produce Company, Columbia, Tenn., has purchased a controlling interest in the Jean Produce Company, Nashville, Tenn., and will install a large cold storage plant in Nashville. A. M. Cochran will manage the business at Nashville.

Sanders & Co., Shelbyville, Tenn., are in the market for woodworking machinery to be used in the manufacture of pencils. They now operate a sawmill.

Athens, Tenn., has approved a bond issue of $38,000, which will be used in the construction of an electric light plant and water-works.

Birmingham

BIRMINGHAM, ALA., June 24, 1912.

The June machinery trade has not been out of the ordinary, but it is steady and inclined to be strong. The special demand seems to be for smaller supplies such as belting, pulleys, etc. The sawmills are the most active plants and, therefore, the largest takers of engines and boilers and will be for some time. The ginneries have not yet become an active quantity in the market. Mines are asking for pumps and boilers with some regularity. Machine tools are also in fair demand. As a rule June business may be considered as fully equal to the average and better in prospective trade.

The Montgomery Light & Traction Company, Montgomery, Ala., has decided to increase its capital stock to $1,000,000. Ray Rushton is president. Further investments by the company, which is owned by Richard Tillis, are thought probable.

Valdosta, Ga., will vote on July 16 upon a bond issue of $100,000, of which $15,000 is to go for water-works construction.

St. Petersburg, Fla., has voted a bond issue of $200,000, of which $25,000 is to be used in water-works construction, the rest in sewers, etc.

Tampa, Fla., D. B. McKay, mayor, proposes to vote on a bond issue of $1,700,000, of which $500,000 is to be used in extending the sewer system.

The Royal Gold Mining Company, Tallapoosa, Ga., is installing a mill with which to grind pebbles.

W. P. McCormick will install a new shingle mill at Apalachicola, Fla., and add more machinery later.

L. W. Roose, of Canton, O., contemplates establishing a metal roofing and guttering plant at Americus, Ga.

Oscar M. Eaton and E. H. Young, Jr., have completed arrangements for establishing a $50,000 ice plant at Lakeland, Fla. An ice machine has already been ordered.

J. B. McCrary, of J. B. McCrary & Co., Atlanta, has applied for franchise to erect $50,000 gas plant at Cordele, Ga. W. H. Dorris is mayor.

The Home Oil & Fertilizer Company, Headland, Ala., has been incorporated with a capital stock of $50,000 to manufacture fertilizers, cotton seed oil and operate ginnery. J. B. Davis is president.

The Cadwell Fertilizer Works, Cadwell, Ga., has been incorporated to manufacture fertilizers. J. F. Rivers and others are the incorporators.

The Senoia Duck Mfg. Company, Senoia, Ga., has applied for a charter with a capital stock of $300,000, with privilege to increase to $500,000. It proposes to manufacture cotton cloth.

W. J. Wallis and others have applied for the incorporation of the Southern Mining Company with headquarters at Americus, Ga. It is proposed to crush shale rock and manufacture sewer pipe, pottery, etc. The capital stock is $27,000 with privilege to increase to $150,000.

Haleyville, Fla., has voted $20,000 for the erection of a water-works system.

Smith Bros. & Co., Birmingham, Ala., whose flour mill at Lynnville, Tenn., was recently burned, have announced plans for the reconstruction of the plant at Decatur, Ala. A site has been secured. The mill will have a capacity of 125 barrels a day.

The Jena Ice, Light & Water Works Company, H. W. Wright of Winnfield, La., in charge, will put in a 12-ton plant at Jena, La.

The Hill Cotton Compress Company, Alexandria, La., has been organized with $100,000 capital stock to manufacture a new type of press. The incorporators are D. F. Clark, S. R. Lee, William Hill, George M. Hardy and W. W. Whittington, Jr.

St. Louis

ST. LOUIS, MO., June 24, 1912.

The machine tool market has continued quiet, no new business of moment appearing. As previously, single tool sales continue and run into reasonable totals. Collections are causing no uneasiness.

The Eureka Elevator Company, St. Louis, with preliminary capital stock of $10,000; has been incorporated by Wilbur B. Christian, James W. Morse and William W. Carruthers to build and operate a chain of grain elevators.

The Wright Pump & Foundry Company, Kansas City, Mo., has been incorporated with a capital stock of $80,000 by Albert B. Wright, George W. Wright and G. H. Gwathmey to equip a large plant.

The Presto Couch Company, St. Louis, has been organized with $45,000 capital stock by Nathan Phillips, M. J. Ehrlich and A. Waldheim to equip a plant to manufacture iron couches.

The Robins-Long Machinery Company, Joplin, Mo., has been incorporated with $21,000 capital stock by J. R. Long, Alexander Robins, R. P. Robins and Byron Bourn, to manufacture machinery.

The Rockwell Mining Company of Arizona has been licensed to use $20,000 of its $150,000 capital to equip and operate a plant at Joplin, Mo.

The Century Zinc Company of New York has been licensed to use all its $20,000 capital in equipping a plant at Joplin, Mo.

The Stanton & Cave Bluff Railroad Company, St. Louis, with $100,000 capital stock, has been formed by W. H. Bauman, J. P. Boland, George P. Burleigh and others to build and equip with power plant, etc., an interurban line from Stanton to Cave, Mo.

The Aluminum Ore Company has purchased 4000 acres of coal land near Tilden and Shiloh, Ill., and will develop it with mining equipment yet to be purchased.

The Paris Steam Laundry Company, with $10,000 capital stock, has been incorporated at Paris, Ill., by U. O. Colson, Henry Crede and C. V. Smith to equip a laundry plant and operate it.

The Western Clock Mfg. Company, La Salle, Ill., has increased its capital to $300,000 to enlarge its plant.

The Farmers Gin Company, Coalgate, Okla., has been incorporated with a capital stock of $7,000 by Thomas Pope, L. A. Hudson, J. M. Covington and G. W. Standridge.

The Inland Compress Company, Durant, Okla., plans to double its capacity at a cost of $5,000.

John Dean, J. W. Coyle and Harold Cook of Guthrie have organized the Empire Cotton Oil Company with $75,000 capital stock to construct and equip an oil mill.

Yazoo City, Miss., will add about $17,000 worth of machinery to the present city electric plant.

The Mangum Milling Company, Mangum, Okla., with $30,000 capital stock, has been incorporated by H. E. Oakes, M. A. Henderson and H. E. Curry.

The Muskogee Water Power Company, Muskogee, Okla., has plans for a 25,000 hp hydroelectric plant, to consist of one central plant and dam and two auxiliary plants. The company's capital stock is $900,000 and is headed by S. P. Mann, with J. D. Darby, C. W. Reid and W. H. Jordan associates.

The Eldorado, Ark., Light & Water Company's plant has been destroyed by fire with a loss of $25,000. It will be replaced.

The Penn Lumber Company is preparing to build a veneer plant at Beirne, Ark., including about $5,000 of machinery. Frank Morrison is president.

The Oklahoma Motor Truck Company, Tulsa, Okla., has been incorporated to manufacture commercial motor trucks. The company is established in temporary quarters and is contemplating the erection of a plant in the near future. The officers of the company are P. E. Haworth, president and treasurer; P. W. Herman, vice-president and general manager, and J. Spencer Cox, secretary.

Texas

AUSTIN, TEXAS, June 22, 1912.

Copious rains throughout the state have added still further to the already bright crop prospects. In central and northern Texas corn was at its critical period of growth. It is claimed that the recent heavy precipitation insures a bumper yield of that grain. There is no change in the machinery trade situation. Dealers report a steady demand for smaller tools and an unusually large scale of equipment for cotton gins, oil mills and compresses.

The Denton Colony Company will construct dams across the Nueces River, install pumping plants and lay out a system of canals and ditches for the purpose of irrigating 68,000 acres of land in Dimmit County. The Rockwell-Slining Engineering Company, San Antonio, is making the surveys for the proposed works.

The Missouri, Kansas & Texas Railway Company is preparing to greatly enlarge its terminals at Temple.

A. H. Duggan & Son have installed a new broom factory at Taylor.

D. E. Savage and associates have purchased the electric light and power plant and ice factory at Rockport. They will install about $40,000 worth of machinery in the electric plant. They will also equip a foundry and machine shop.

The Texas City Terminal Company is interested in plans for the construction of an electric street railway system at Texas City.

F. J. Macarthy, of Macarthy Brothers, contracting engineers of Chicago, Minneapolis and Denver, is promoting the construction of a dam across San Diego creek and building a system of canals and ditches that will provide irrigation for about 60,000 acres of land in Duval County. The proposed dam will be of reinforced concrete material 1700 ft. long and 62 ft. high.

H. F. Underwood of Athens will erect a cotton compress at Aransas Pass. Local citizens have donated 10 acres as a site for the proposed plant. The compress building will be 140 x 200 ft., and with the machinery will cost about $60,000.

The City Council of Madisonville, has ordered an election of taxpayers to be held July 15 for the purpose of voting on the proposition of issuing $16,000 of bonds for the installing of waterworks plant and distributing system.

J. H. Baughman will install a steam shovel plant at his gravel pit near Columbus.

The Green Lake Mill & Gin Company, Victoria, which was recently organized, will install an electric light plant and cotton gin in the new town of Austwell in Victoria County.

The Green Lake Farming Company, Victoria, has been organized with a capital stock of $100,000 for the purpose of manufacturing and refining sugar and growing sugar cane. The incorporators are C. S. E. Holland, T. P. Traylor, E. R. Austin, F. B. Lander and Benjamin W. Fly, all of Victoria.

The Magnolia Petroleum Company will expend between $300,000 and $500,000 in the enlargement of its refinery at Beaumont. There will be added a plant for manufacturing lubricating oils, paraffin wax and axle grease. It also proposes to install additional pipe line and loading facilities for the purpose of handling the product more expeditiously at a loading point on the deep water channel.

The Terminal Grain Company is enlarging the capacity of its elevator at Fort Worth.

W. J. Boaz will make important improvements in his grain elevator at Fort Worth.

The Commissioners of Dallas, Texas, will receive bids until July 24 for the construction of a water filtration plant complete.

The Pacific Coast

SAN FRANCISCO, CAL., June 18, 1912.

The placing of orders for the Southern Pacific shipbuilding plant is the only notable development in the machine tool market. The business was divided between agents for several large manufacturers. There is a fair demand for small tools from automobile and repair shops, but only scattering single tool orders are coming out for heavier types of equipment, and there is little indication of betterment in the near future. Woodworking machinery is also rather quiet, business on recent inquiries being slow to develop. Several important timber sales have been closed in the redwood district, however, and it is believed that the new owners will start development work shortly.

Contractors' equipment for use on large construction projects continues in strong demand. Aside from various hydro-electric developments, for which frequent purchases are made, several large railroad construction contracts have recently been let, and there is more work of this class in progress than for several years. Some activity, also, is noted in quarry development.

A large shipment of Chicago pneumatic drills has just been sent to Stone & Webster, contractors on the San Joaquin Light & Power Company's development on the San Joaquin River. In this work a long railroad line is being laid, and 5 miles of 10½ ft. tunnel is being drilled. The initial unit of the plant, which will probably be completed next year, will develop about 75,000 hp., and the capacity will later be doubled.

Nealis & Tomasso, contractors on the Oakland & Antioch Railroad, are using a steam shovel of the Marion type, 15 Koppel double-side dump cars and Koppel portable track. Murray & Homer, contractors on the same line, are also using a Marion shovel and Koppel cars.

The Norman B. Livermore Company reports a large amount of locomotive repair work at its shops in South San Francisco, besides the recent sale of six new locomotives for construction on the Southern Pacific Railroad.

The Dow-Willans-Diesel Engine Company has placed its orders direct with builders in the East for a number of special tools for its new plant at Alameda, Cal. Before the new plant is installed, it is proposed to make the engines at the Dow pump works, and the first deliveries will probably be made about August 1.

The Corona Machine & Auto Works, Corona, Cal., is installing a shop for automobile and general repair work.

The Sterling Laundry Company, this city, has placed orders for a complete new outfit for a large plant. The Metropolitan Laundry, controlling three large plants, has also ordered a lot of new machinery.

The Munger Laundry Company, Los Angeles, Cal., is preparing to spend about $100,000 on a new plant at San Diego, Cal.

The Watsonville Water Company, Watsonville, Cal., is planning to install a new pumping outfit.

The Pacific Sanitary Mfg. Company, Richmond, Cal., is preparing to make a large addition to its pottery plant.

The Acme Ornamental Iron Works, Los Angeles, has been incorporated with a capital stock of $10,000, by Adolph Mincke, Thomas Novatny, and E. Ruttkamp.

The Layne-Bowler Company, Los Angeles, manufacturer of pumps, is planning to increase its capacity.

The Columbia Steel Company is gradually improving and enlarging its plant at Pittsburg, Cal. The office space in the Hooker & Lent Building, San Francisco, has been more than doubled.

The Warren Marble Company, a new concern of this city, has acquired quarry property in Tuolumne County, Cal., and plans to install eight gang saws in addition to a lot of new quarry machinery.

The Gorham Engineering Works, Oakland, Cal., has recently taken orders for nine gasoline motor fire engines.

The Los Banos Ice Works, Los Banos, Cal., is putting in a lot of new machinery.

Schultze, Robinson & Schultze, shipbuilders, this city, have purchased an old shipyard at Benicia, Cal., and propose to install modern equipment for the construction of steel as well as wooden vessels.

It is announced that the Mare Island, Cal., Navy Yard has submitted the lowest figure on a 190-ton gunboat. Orders have been received, however, to delay preparations for the work.

The Common Sense Pile Protector Company, Long Beach, Cal., has leased a building and is installing machinery for the manufacture of a device to protect wooden piling.

Eastern Canada

TORONTO, ONT., June 24, 1912.

The General Fire Extinguisher Company, Montreal, has commenced excavating for its two-story brick and steel building on Dundas street. The structure will cost about $45,000.

The Consolidated Rubber Company, Ltd., proposes to erect a factory in Berlin, Ont., for the manufacture of automobile tires, entailing an expenditure of $250,000 on buildings and equipment, and employing before the end of the first year 150 skilled mechanics, and 250 at the end of the second year, on condition that the ratepayers pass a by-law granting a bonus of $25,000 for the purpose of acquiring a site of fifteen acres, and a fixed assessment of $25,000 for a period of ten years.

The establishing of a blast furnace plant at Port Colborne, Ont., is considered as a triumph due to the Borden anti-reciprocity policy. It will be headed by Frank B. Baird, president Buffalo Union Furnace Company, and will be known as the Canadian Union Furnace Company. The new plant, while affiliated with the Buffalo concern, is backed to a great extent by Canadian capital. The $2,000,000 capital stock has already been subscribed. The plant will be built at the end of the Port Colborne piers and will extend out into the lake.

James N. Vickers, of Vickers, Ltd., England, states that his firm will establish shipbuilding works in the Dominion if the Government decides to build battleships in Canada. Mr. Vickers is one of the British manufacturers visiting Canada at present.

The Canadian Northern Railway Company has ordered four additional gasoline locomotives for use in the bottom headings of the Montreal tunnel while it is under construction.

The Carritte-Paterson Company, Halifax, N. S., will erect a big paper mill at Fairview, a suburb, if granted tax exemption for a period of 15 years. The mill at the outset will give employment to 50 men, the majority of whom are skilled mechanics with families, and they will be brought here from other mills. The company will pay out annually from $75,000 to $100,000 in wages. This includes the salary list of the present plant.

The Ogilvie Milling Company, Montreal, has plans under way for a branch flour mill to be located on the Welland Canal at Port Colborne, Ont. The capacity of the mill will be 800 barrels of flour daily.

The Smith Mfg. Company, Toronto, has completed plans for a three-story brick factory and wool stock warehouse, which it will erect at Front and Princess streets.

M. J. O'Brien, Renfrew, Ont., is having plans prepared for a pulp mill, which he will erect at that place, to have a daily capacity of 400 tons. The mill will be operated by water power to be obtained from Quinze Lake, Que.

The Whitman & Barnes Mfg. Company, Akron, Ohio, whose plans for enlarging its St. Catharines, Ont., factory were recently referred to, states that the additions are necessary on account of its growing needs. It will require in the way of equipment drop hammers, forging presses, lathes and other machinery used in the manufacture of hammers and wrenches.

Western Canada

WINNIPEG, MAN., June 20, 1912.

Local machinery dealers state that the volume of business in their lines this season cannot properly be gauged from the number of new plants and buildings being established and additions made to old ones. A very large amount of business in the aggregate is being done in comparatively small orders for addition to machinery in hundreds of plants throughout the West. In many instances factories and mills that were completed only a short time ago are finding it necessary to increase their capacities. Lumber mills are constantly buying supplies of one kind or another.

W. W. Butler, vice-president Canadian Car & Foundry Company, Ltd., Montreal, announces that his company will establish a branch plant at Vancouver, somewhat smaller than the one to be established at Fort William. A foundry for making steel castings will be one of the features of the works at the coast.

The Canadian Northern Railway Company is doubling the capacity of its terminal elevators at Port Arthur this year. The Canadian Pacific Railway is spending large sums of money on improvements to their various plants at Fort William.

The B. C. Electric Railway Company, recently mentioned as having awarded a contract for the construction of a steam auxiliary plant on Vancouver Island, will install in addition to a complete steam generating plant two turbo-generators, each having a capacity of 2000 kw.

It is expected that the City Council of Calgary, Alberta, will soon submit another by-law for the expenditure of $200,000 besides the amount voted on some time ago, to further extend the electric light plant and system.

The Canadian West Natural Gas Company, Calgary, Alberta, is erecting a machine shop. The general contractor is Fyshe, Martin & Co., Calgary.

The town of Vernon, B. C., is calling for tenders for a power house. The engineer is Mather, Yuill & Co., Ltd,. Vancouver.

In connection with the Winnipeg power plant, it is contemplated to install three transformers of 1000 kw each, for reducing 60,0000 volts to 2200 volts at the terminal station. The engineer is J. G. Glassco, 54 King street.

L. Jorundson will build a sash and door factory in Winnipeg.

The Canadian Electric Turpentine Syndicate, Vancouver, is preparing to make additions and improvements.

T. H. Preston, Medicine Hat, Alberta, will build a planing mill there at a cost of $25,000.

Plans are prepared for a cold storage plant for the Moose Jaw Cold Storage Company, Moose Jaw, Sask. S. Smith of that city is the architect.

It is reported that the Alberta Clay Products Company, Medicine Hat, Alberta, will establish a new plant there.

The Newport Timber Company, Newport, B. C., the largest logging concern operating in that district, is preparing to double its output.

A by-law has been passed in Medicine Hat, Alberta, to spend $60,000 on electric light plant extensions.

The Poulin Lumber Company, Nelson, B. C., has purchased a site at Bernard Siding on which to establish a planing mill and a sash and door factory.

The Canada Cement Company, Ltd., Montreal, has under consideration the erecting of a large cement plant at Medicine Hat, Alberta.

The town of Watrous, Sask., is calling for tenders, until July 31, for waterworks supplies, including pumping machinery, castings, valves, hydrants, sewer pipes, etc. The engineers are Chipman & Power, Winnipeg and Toronto.

Despite the fact that considerable work still remains to be done in a few of the buildings, the new power plant and machine shops of the Grand Trunk Pacific Railway at Transcona, Man., have been completed and opened. In the locomotive shops everything is ready to be turned over for use. These are 600 ft. long with an additional section at the east end for use as a boilermaking room, which is 200 ft. in length. The north is the bench side where minor repairs to locomotives will be made. Running the entire length of the building is a large 120-ton traveling crane with a smaller 10-ton crane on a track below. Construction is being rapidly pushed on the car shops and the steel skeletons are rapidly taking form. They will be 650 x 225 ft. The iron foundry is now ready for occupation as are also the carpenter and pattern shops.

The Vulcan Automobile Company has completed its large factory at Wetaskawin, Alberta, and has begun to carry on manufacturing operations.

Vancouver will have a new supply firm in the Dominion Equipment & Supply Company, which has been incorporated with a capital stock of $100,000.

The Canadian Northern Railway Company states that construction will begin immediately on its roundhouses and repair shops at Port Mann. Construction of the line is going on very satistactorily and all rails will be joined, right through from Vancouver to Toronto the latter part of next year.

Government Purchases

WASHINGTON, D. C., June 24, 1912.

The Bureau of Supplies and Accounts, Navy Department, Washington, will open bids July 16 for one hydraulic press, for delivery to Washington.

The purchasing agent, Post Office Department, Washington, will open bids July 11 for furnishing approximately 20 machines for facing and automatically stacking mail.

The Bureau of Supplies and Accounts, Navy Department, Washington, opened bids June 18 for material and supplies for the navy yards as follows:

Schedule 4599, class 181, one double end 600 volt direct current electric locomotive—Bidder 8, Atlas Car & Mfg. Company, Cleveland, Ohio, $3,900 and $3,934; 96, General Electric Company, Schenectady, N. Y., $4,079; 227, Westinghouse Electric & Mfg. Company, Washington, $4,972 and $5,272.

Class 183, two electrically driven centrifugal machines—Bidder 65, D'Olier Centrifugal Pump & Machine Company, Philadelphia, Pa., $1,412.50 and $1,487.50; 147, Manning, Maxwell & Moore, New York, $1,673.50.

Class 184, one hydraulic finishing press for power—Bidder 22, Bethlehem Steel Company, South Bethlehem, Pa., $5,482.60; 38, Camden Iron Works, Camden, N. J., $6,360; 235, Watson-Stillman Company, New York, $3,900; Fawcus Machine Company, Pittsburgh, Pa., $4,960.

Class 185, one duplex steam cross compound, steam actuated air compressor—Bidder 26, Blaisdell Machinery Company, Bradford, Pa., $4,370; 59, Chicago Pneumatic Tool Company, New York, $2,710 and $2,810; 110, Hall Steam Pump Company Pittsburgh, Pa., $2,848, $3,090, $3,881 and $4,121; 122, Ingersoll-Rand Company, New York, $3,190; 134, Laidlaw, Dunn, Gordon Company, New York, $3,485 and $3,145; 249, Rawles-Cobb Company, Boston, Mass., $3,925.

Class 186, one vertical feed water heater, closed type—Bidder 14, Alberger Pump & Condenser Company, New York, $975; 37, John Brennan & Co., Washington, $1,350; 82, Exeter Machine Works, Pittston, Pa., $790; 99, Griscom-Spencer Company, New York, $618; 103, Godfrey, Keeler Company, New York, $1,090; 134, Laidlaw, Dunn, Gordon Company, New York, $1,175; 182, Frank L. Patterson Company, New York, $1,285; 204, Sanitary Water Still Company, Jamaica, N. Y., $900; 205, Schutte & Koerting Company, Philadelphia, $1,000; 228, Whitlock Coil Pipe Company, Hartford, Conn., $1,000 and $1,010; 249, Rawles-Cobb Company Boston, Mass., $1,145.

A Western Steel Corporation Suit.—A Seattle, Wash., dispatch says that James A. Moore, who promoted the Western Steel Corporation, has filed suit in the United States District Court, against the Metropolitan Trust Company of New York and others, to recover the plant of the Western Steel Corporation and its ore and timber holdings and $1,000,000 damages. He charges the defendants with conspiring to bankrupt him and his company at the direction of the United States Steel Corporation. Judge Still has appointed R. McClelland of Port Townsend temporary receiver of all the properties the Metropolitan Trust Company acquired when the referee in bankruptcy sold the assets of the Western Steel Corporation on March 19, 1912.

The Brown & Sharpe Mfg. Company, Providence, R. I., announces that its works will be closed from August 2 to 19 for the annual vacation. The offices will, however, be open during that time as usual and all orders will be attended to as promptly as at any other period of the year.

Trade Publications

Electric Fans.—General Electric Company, Schenectady, N. Y. Bulletin No. 4895, superseding No. 4806. Contains description and illustrations of fans manufactured by this company for use in the home, office and public places. The line comprises those suitable for use on desks or tables which have blades ranging from 8 to 16 in. in diameter. Two styles, fixed and oscillating, are made and all of the fans are convertible without the use of tools or additional parts, so that any one may be used on a horizontal surface or attached to a wall. Illustrations and descriptions of the ceiling and column fans of this company and a line of parts supplied for them are also included.

Disk Grinding Machines.—Chas. Besly & Co., 118 North Clinton street, Chicago, Ill. Catalogue. Size 6 x 9 in.; pages, 112. Covers the complete line of disk grinding machines built by this company, which includes single and double spindle belt-driven machines, single-spindle motor-driven machines, vertical spindle and special grinding machines and pattern makers' disk grinding machines. In making up the catalogue a list of standard sizes of each type is given, together with the special uses to which it may be put and the page upon which it is illustrated. Detailed information regarding the dimensions, weight, etc., of the various parts and accessories is included, and a number of sample pieces of work done on the different machines are shown and briefly described. Among the machines listed is a special pattern makers' disk grinding machine which was illustrated in *The Iron Age*, October 19, 1911.

Pulleys.—Cork Insert Company, 16 State street, Boston, Mass. Pamphlet entitled, "Here's the Proof." Consists entirely of reproductions of testimonial letters giving the results obtained with Cork Insert equipment.

Switchboards.—General Electric Company, Schenectady, N. Y. Two bulletins. No. 4918 illustrates and describes direct-current switchboard panels for general use in central stations. These are made in both the generator and feeder type for voltages of 125, 225 and 600 volts. No. 4919 is devoted to a description of small panels which are designed for the control of three-wire generators, wound for 125 and 250 volts and ranging in capacity from 25 to 100 kw.

Electric Motor and Measuring Instruments.—Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa. Two leaflets. The first, No. 2278, describes the type CCL induction motor and contains complete and detailed views, together with a brief description of its main characteristics. No. 2330 covers the type JL direct-current vertical edgewise switchboard ammeters and voltmeters operating on the D'Arsonval principle with a single air-gap. If desired these meters can be mounted on 5¼-in. centers.

Water Wheels.—George J. Henry, Jr., Rialto Building, San Francisco, Cal. Pamphlet. Describes a tangential water wheel for use in hydroelectric, transmission, mining and industrial plants.

Small Turbo-Generator Sets.—General Electric Company, Schenectady, N. Y. Bulletin No. 4887. Illustrates and describes a line of small turbo-generator sets of the horizontal type which are built in capacities of from 5 to 300 kw. These can be arranged to operate either condensing or non-condensing at steam pressures above 80 lb. for the smaller sizes and 100 lb. for the larger ones.

Fuel Oil Burner.—H. B. Stilz, 1938 Monroe street, Philadelphia, Pa. Circular. Treats of a new type of fuel oil burner in which the air and oil are uniformly mixed as they start into the furnace.

Fire Clay Products.—Chicago Retort & Fire Brick Company, Commercial National Bank Building, Chicago, Ill. Seven folders. Pertain to the various types of fire clay products manufactured by this company and show some of the stages in their manufacture.

Triplex Power Pumps.—Goulds Mfg. Company, Seneca Falls, N. Y. Pamphlet entitled, "How and Where Pumping Costs Can Be Reduced." Relates to the savings effected by the Triplex power pumps in manufacturing plants, power stations, office buildings and municipal pumping plants. Some of the places where these pumps are installed are illustrated and their advantages are briefly touched upon. The several types which are arranged for belt or direct-connected motor drive or a gas engine drive are shown.

Pulleys.—Cork Insert Company, 16 State street, Boston, Mass. Folder. Relates to the cost of transmitting power with cast-iron, paper and cork insert pulleys on a 10-hp. electric motor. The saving effected per pulley by the use of cork inserts amounted to $270 per year over a cast-iron pulley, and $67.50 over a paper one.

Turbine Pumping Machinery.—Lea Equipment Company, Wayne Junction, Philadelphia, Pa. Bulletin K. Devoted to the Lea high-duty turbine pumps, which are made in a number of different sizes. The construction of the pump is described at length and the text is supplemented by a number of engravings of the different units. One of the special fields for which this equipment is used is for fire service, and four sizes ranging in capacity from 500 to 1500 gal. per minute are built. A test of one of these pumps is shown and the characteristic curves of it are reproduced.

Pneumatic Tools.—Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. Circular No. 97. Calls attention to several types of pneumatic drilling machines, an air compressor, a pile driver and a rivet buster. All of these are illustrated and briefly described. An interesting feature of the circular is the reproduction of a map of the Loop district of Chicago, where 11 buildings are being erected simultaneously on which Chicago pneumatic tools are being used exclusively. In connection with each building there is a small cut of the different types of tools.

Power Presses.—Max Ams Machine Company, Mt. Vernon, N. Y. Brochure No. 165. Treats of a few of the recent designs of Ams power presses. These include inclinable, geared, double action, open back, horning, punching, straight sided, knuckle joint and double crank presses. *The Iron Age*, September 1, 1910, contained an illustrated description of a double pitman press which is shown in its improved form in the brochure. These types are the standard ones, but numerous others and special presses can also be furnished.

Cutting Compound.—Oakley Chemical Company, 114 Liberty street, New York City. Folder. Treats of Oakite cutting compound, which is designed to take the place of oil for cutting. It can also be used for grinding and polishing, removing the oil from waste, for general cleaning in factories and also for replacing the alkalies in cleaning hollowware.

Electric Lighting and Power Plant.—Wood & Spencer Company, Cleveland, Ohio. Pamphlet. Points out the advantages of the Casalux electric light and power plant for isolated buildings. This consists of a gasoline engine and generator, a switchboard and a storage battery. The construction of the plant is described at length and a number of uses for it are discussed.

Drills.—Morse Twist Drill & Machine Company, New Bedford, Mass. Catalogue. Size, 4¾ x 7 in.; pages, 368. Contains illustrations and descriptive matter covering a complete line of drills, reamers, milling cutters, taps, dies, chucks and machinists' tools. Where several sizes are made a list with the principal dimensions of each is given. In common with previous catalogues, there is an appendix containing general information on a number of subjects of interest to machinists.

Carbonic Acid Gas Recorders.—Precision Instrument Company, Detroit, Mich. Supplement 2 to Catalogue D. Concerned with CO_2 Precision Simmance-Abady patent automatic recorders and corrosive gas analyzers. The former are of the special type used in lime and ceramic kilns, beet sugar plants, gas producers, for process gas in chemical works and other waste gases, while the latter are intended to be used for sulphur dioxide, hydrochloric acid gas and similar gases employed in paper mills, bleacheries and chemical works. Both of these instruments are built along the same lines, the only difference being that in the latter glass and wood are substituted for metal wherever it would become corroded. An illustrated description of the carbon dioxide recorder appeared in *The Iron Age*, May 11, 1911.

Recording Gauges.—Bristol Company, Waterbury, Conn. Catalogue No. 1000. Size, 8 x 10½ in.; pages, 64. Lists all the company's recording pressure and vacuum gauges except three round form styles. Reproductions of specimen charts are included and the various types that can be furnished in 6, 8, 10 and 12 in. sizes are also shown. Engravings showing the comparative size of the different gauges are included.

Forging Presses.—United Engineering & Foundry Company, Pittsburgh, Pa. Booklet. Concerned with high speed forging presses of the steam-hydraulic intensifier type. These are built with single lever control for all classes of forging, shearing or pressing work and range in capacity from 100 to 12,000 tons. A general description of the press is given and this is followed by engravings showing the various types that have been installed in different large shops. Reproductions of forgings made on these presses, dimension tables and a number of views of the company's plant are included. Illustrated descriptions of the presses have appeared in *The Iron Age*, June 13, 1910, and January 26, 1911.

Fences, Railings and Lockers.—Wayne Iron Works, Arcade Building, Philadelphia, Pa. Pamphlet. Is composed almost entirely of illustrations of the various types of fences and pipe and bridge railings furnished by this company. A few line drawings of different types of railroad fences are also included as well as engravings of the Keystone expanded metal lockers.

Steel Castings.—Chester Steel Castings Company, 407 Sansom street, Philadelphia, Pa. Brochure of 20 pages, showing chiefly large and difficult castings, including heavy acid open hearth gears, castings for dredging machines and acid open hearth pump casings twice the hight of a man, different types of rail joints and a miscellaneous lot of cementation steel castings like crank shafts, bevel gears and automobile parts.

Heat Treating Furnaces.—W. S. Rockwell Company, 50 Church street, New York City. Folder of four pages describing the operation of oil or gas fired furnaces for light forging work, for tool dressing and heat treatment. Under the head of light forging can be conducted such operations as heating knife blanks, shear blades, files, pliers, etc.